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ABSTRACT

This is an annotated bibliography of selected energy education materials. These materials were selected according to the following criteria: (1) Usability in an instructional atmosphere; (2) Relevancy to issues on energy use in the environment; (3) Accuracy and current relevancy of energy facts and trends; (4) Attractiveness of format including organization; (5) Emphasis on energy conservation and quality of life; and (6) Emphasis on student involvement in classroom or community activities. A coding system is used for cross-referencing and for indicating grade level and conceptual area for which an entry is appropriate. A variety of different types of materials including: (1) bibliographies; (2) pamphlets; (3) books; (4) periodicals and articles; (5) teaching guides; and (6) audiovisual materials and simulations, are annotated in this bibliography. (MR)

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ENERGY:

AN ANNOTATED BIBLIOGRAPHY OF SELECTED ENERGY EDUCATION MATERIALS

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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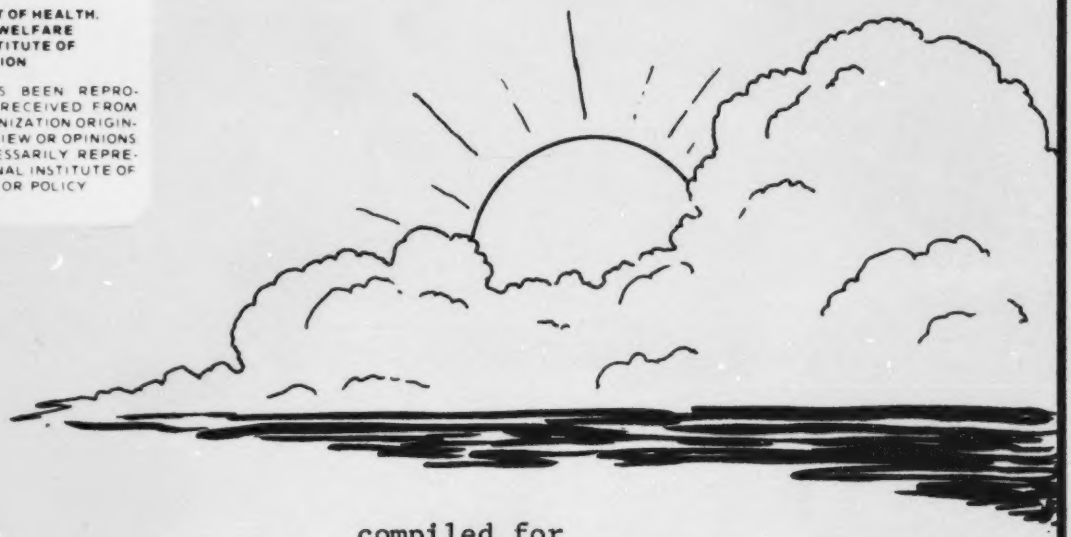

compiled for
THE ENERGY AND EDUCATION ACTION CENTER
H. E. W.
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THE HATHEWAY ENVIRONMENTAL
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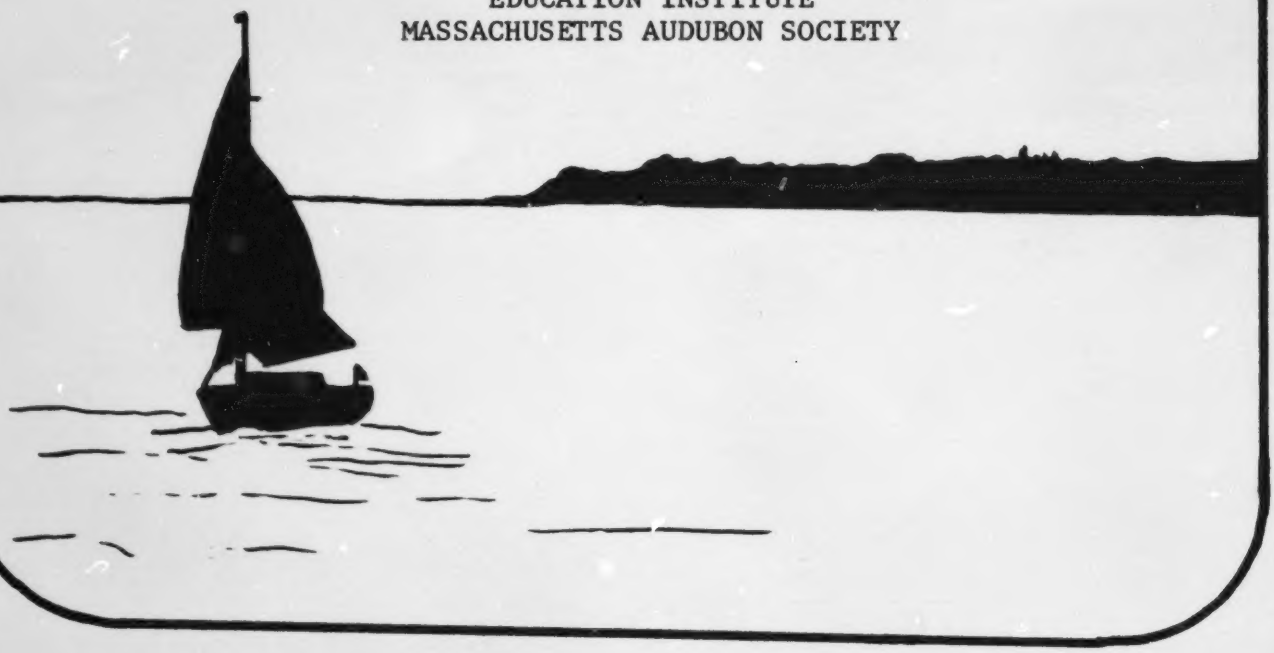
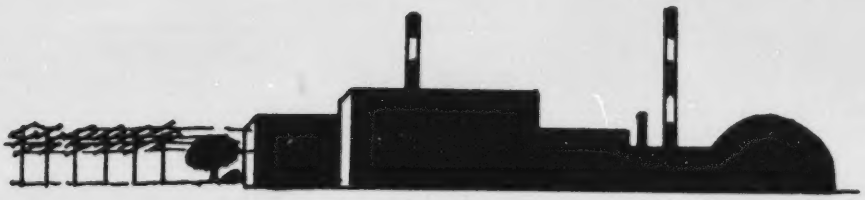


SE 025 474

This publication was prepared pursuant to a contract with the United States Office of Education. It represents a select rather than a comprehensive listing of materials prepared for the information and convenience of teachers. Selection of material for the list by either the Massachusetts Audubon Society or the U.S. Office of Education does not constitute official endorsement or approval of it to the exclusion of others which may be suitable.



PREFACE

This is a select, annotated bibliography of energy education materials that was compiled by the staff of Massachusetts Audubon Society's Hatheway Environmental Education Institute under a contract with H.E.W.'s Energy and Education Action Center. The selections and omissions do not imply any endorsement by the federal agency but are the result of judgements by the HEEI staff. The selections cover materials produced through 1977.

Selection of materials - books, brochures, games, audio-visuals, bibliographies - for this bibliography was based upon the following:

1. Useability in an instructional atmosphere, that is, the material should be suitable for use by students, teachers, or other adult leaders in school classrooms or community seminars.
2. Relevancy to issues on energy use in the environment.
3. Accuracy and up-to-dateness of energy facts and trends. Undated material was excluded. This had its greatest impact on the elimination of films.
4. Attractiveness of format - organization, illustrations, resources.
5. Emphasis on energy conservation and quality of life.
6. The emphasis has been placed on that curriculum material which calls for active student participation, in the classroom or in the community.

Reviewers of the materials were all experienced teachers and teacher-trainers along with technical review from energy scientists. We would like particularly to thank Dr. Dennis Darling of Kalamazoo State College and Dr. William Alschuler of the Massachusetts Audubon Society Scientific Staff for their contributions.

Each citation is cross-referenced by a system of coding. In addition to its placing according to the basic type of material, the codes indicate education levels for which the material is most suitable and the energy education conceptual areas for which the material is appropriate.

CODES

E.	Elementary school	(K-6) grade approximation
J.H.	Junior high school	(6-9) grade approximation
H.S.	High school	(9-12) grade approximation
V.T.	Vocational technical school	
Ad.	Adult	

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a. Energy Systems: Applied/Technical Information or Applications
b. Energy Conservation: Better Practices
c. Energy Conservation: Ethics and Values
d. Energy for Tomorrow's Society: New Directions
e. Energy/Environmental Education

A great mass of energy material is rolling off the nation's presses. Much of it is duplicative of other efforts and the sheer bulk of material is almost overwhelming. It is the editors' hope that this bibliography will ease the leader's burden in selecting useful material appropriate to the course or program that person is conducting.

Note: Where prices are not included, write to producer for information.

Louise Maglione
Director, HEEI Resource Center
and
Coordinator, Energy Bibliography Project

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INTRODUCTION

Energy is that strange stuff that makes the universe operate. It isn't anything - yet it is everything. There isn't any simple way to describe energy. We can show some of the things that produce or transmit energy or things that receive energy. The energy itself remains elusive.

Doing anything takes energy whether you are a plant, an animal or a rock. Just as money is the currency of the business world, energy is the currency of the universe. Without it everything would come to a standstill.

Energy moves our cars and trains, puts the glow in our lights, produces the heat in our homes, lets us move. Energy is so much a part of every aspect of all our lives that we seldom think about it. And because we don't think about energy or how we use it, we all waste a great deal of it. Such waste and careless use are part of the reason why some sources of energy are in short supply. Because of this, some cars today are without gas. There are homes without heat, and some people are even starving.

Since energy is so all pervasive in our lives, it is basically taken for granted. It is not until a shortage of some form of energy emerges that we separate energy concerns out of the background of our daily lives. Even then, we seldom worry too much, for we have come to believe in the myth of the technological fix. However, all energy sources come from the environment and securing them and converting them to forms suitable for our human uses has broad impact on the environment upon which we also depend for a variety of other purposes. This is further complicated by burgeoning population worldwide and ever increasing per capita demands for energy. Thus, energy education must deal with a broad spectrum of topics in addition to the simple facts of the physics of energy.

In addition to helping learners discover the facts about energy and its sources, conversions, and utilization, energy education must deal with citizenship education concerning individual and social action regarding demand for and utilization of energy.

Dr. James J. Gallagher, Director of the Science and Mathematics Teaching Center at Michigan State University, and his staff have developed a good working set of categories for energy education that indicates the range of concerns. We present it here in much abbreviated form.

1. Definitions and Concepts of Energy. A focus on the differences between energy and sources of energy, the unidirectional flow of energy and such basic concepts as entropy, net energy, and energy efficiency which must become well understood ideas among all our citizenry.

2. Sources of fuels and energy. Focus on the nature, potential, and limitations of the many sources of energy.

3. Uses of fuels and energy. Focus on understanding the fundamental relationships between energy use and the satisfaction of our personal and social needs, interfaced with the tendency of increased energy use nationally and worldwide.

4. Conservation of fuels and energy. Focus on wise energy use and specific practices for efficient and intelligent use of energy on a day to day basis.

5. Technology of energy production and transmission. Focus on the technologies which underlie production, storage, transmission, distribution, and use of energy and the inter-connected problems of changing from one major fuel source to another. Also a focus on the differences between cooperation needed between pure science and technology and the time lag thus generated in solving energy problems.

6. Economics. Focus on the understanding of the role of supply and demand on energy prices and the search for new energy sources. Also a focus on the impact which changes in fuel have on jobs and on various segments of society such as manufacturing or energy industries. Also a focus on the impact of fuel imports on the national balance of payments and the international economic systems.

7. Politics. Focus on the role of public policy and legislation in wise energy planning and awareness of agencies which make, influence, and/or enforce energy policies.

8. Quality of Environments. Focus on the impact of various energy useage and the quality of the environment (i.e., air pollution, strip mining, radioactive hazard, etc.)

9. Quality of Life. Focus on helping people discover ways to maintain or improve the quality of life while reducing energy consumption.

No single teacher can cover all these areas, nor are all of them appropriate to any given developmental level. Indeed, these are constantly expanding concepts throughout the lives of most people. However, there are some rough guidelines that help indicate the more appropriate stages for introducing learners to some of these concepts.

The concept of energy itself is very abstract. It is almost impossible for people who have not developed a considerable ability to handle abstract thought to have any actual concept of what energy is. Indeed many PhDs in physics will, when pressed, admit to a poor conceptualization of energy. Obviously then, we should not expect elementary grade children or even most high school grade children to understand what energy is.

On the other hand, it is quite possible to observe concretely many things that energy does. We can observe sources of energy and energy transmitters and receivers. Thus these concepts can be initiated fairly well in the upper elementary grades.

Things dealing with energy conversion, energy flow, entropy, and other abstract concepts are seldom adequately grasped by learners much below the high school years. The same is true of political and economic concepts that, for reasonable comprehension, demand an ability to deal with complex inter-relationships. Those ideas that are more clearly of a simple cause/effect nature can be introduced earlier.

Energy education for the very young is not to be neglected, however, for there is a variety of activities for energy conservation that can be introduced early in the format of habit development. These can be introduced with simple explanation and reinforced until they become habitual. These young learners can also be given experiences that will help them conceptualize the vast network of energy transmissions and sources by appropriate field trips to power plants, transmission stations, etc. You will not find a great deal of material in this bibliography for very young children, not only because it does not exist, but because developing such material would be largely inappropriate. This does not mean however that energy education for this age should be ignored.

Energy education is a life-long process, as are the other aspects of environmental education, and there must be effective adult education as well as youth education. It is hoped that the annotated listings in this publication will help you as an adult learner as well as a leader of youth.

ENERGY BIBLIOGRAPHY

I. BOOKS, PAMPHLETS, REPORTS

Abrahamson, Dean E. ENVIRONMENTAL COST OF ELECTRIC POWER. Scientists Institute for Public Information, 1970. (H.S., Ad./a,b,d,e)

This slim paperback, written in non-technical terms, is a rich source of information for both teachers and students. Social implications are stressed as well as scientific aspects. The chart, depicting the environmental cost of producing electricity by fossil fuel and by nuclear fuel, makes an excellent teaching aid.

This publication would tie in well with MAN AND THE ENVIRONMENT cited elsewhere in bibliography.

American Nuclear Society NUCLEAR POWER AND THE ENVIRONMENT: QUESTIONS AND ANSWERS. 1976. Free. (H.S./a,d)

A report on nuclear power from the viewpoint of the American Nuclear Society. Includes bibliography and references.

Anderson, Bruce THE SOLAR HOME BOOK: HEATING, COOLING AND DESIGNING WITH THE SUN. Cheshire Books, 1976. $8.50 paper. (H.S., V.T., Ad./a,b,d)

Probably the most informative and practical book on solar home design available. Very descriptive of the pioneering work done in solar housing and the new developments which can be used effectively in passive as well as active solar systems.

Baer, Steve SUNSPOTS. Zomeworks Corp. 1977. $4.00. (H.S., Ad./a,b,d)

A refreshing introduction to the sun's energy and how, with simple experiments and devices, we can capture solar heat and enjoy an energy conscious lifestyle. The thermo-dynamics of solar collectors and engines is presented with exceptional interest for people who like to "do-it-themselves." It provides a starting point for many science projects.

Barney, Gerald O. (Editor) THE UNFINISHED AGENDA. Thomas Y. Crowell Co., 1977. $7.95. (H.S./c,d)

A collection of 63 leading environmentalists were asked to identify and describe the most critical problems we face during the next decade. This book makes recommendations for the immediate handling and long term resolution of these problems. It prescribes reforms on all fronts and at all levels of participation.

Berkowitz, David and Arthur M. Squires (Eds.) POWER GENERATION AND ENVIRONMENTAL CHANGE. The MIT Press, 1971. $16.95. (Ad./a,c,d)

Presents the many and varied relationships between power generation and environmental change and provides a basis for understanding the consequences of increased power generation capacity.

Brown, Theodore L. ENERGY AND THE ENVIRONMENT. Merrill, 1971. $3.95. (H.S., Ad./b,c,e)

An analysis of the impact of man's energy production and use on environment and climate. The limits on man's consumption of energy and related matters which must be dealt with if our nation and world society are to advance materially.

Buel, Ronald A. DEAD END: THE AUTOMOBILE IN MASS TRANSPORTATION. Prentice-Hall, 1972. $1.45. (H.S., V.T., Ad./a,b,c)

A comprehensive analysis of the role and impact of the automobile on the American environment - not just its importance as transportation but rather its far-reaching effects are stressed.

Chase Manhattan Bank OUTLOOK FOR ENERGY IN THE UNITED STATES TO 1985. C.M.B., 1972. (H.S./a,e)

The statistics, such as what parts of the U.S. economy use how much of what fuel, are presented in clear and graphically arresting fashion - an excellent reference source.

Clegg, Peter NEW LOW-COST SOURCES OF ENERGY FOR THE HOME. Garden Way Publishing Co., 1975. New edition 1977. $6.95 paperback. (H.S., V.T., Ad./a,b,d)

A unique equipment and information guide for several energy systems including solar, wind, water, waste and wood. Many illustrations and suggested references.

Commoner, Barry THE POVERTY OF POWER. ENERGY AND ECONOMIC CRISIS. Bantam Books, 1977. $2.75. (Ad./a,c,d)

This book shows the connections between pollution, economic stagnation, and vanishing energy resources. It deals with the misuse of fossil fuels and their short supply; the economically disastrous nuclear program; the development of solar energy as an abundant and economic power and the necessity for rethinking our lifestyles and use of power to avoid real poverty. A required reading.

Concern, Inc. ENERGY CONSERVATION: ECO-TIPS #5. 1973. $7.50/100 copies. (H.S., V.T./b,e)

A valuable leaflet that offers economically and environmentally helpful consumer suggestions on ways to conserve energy. Offers many possibilities for classroom discussion and research.

Congdon, R. J. (Editor) INTRODUCTION TO APPROPRIATE TECHNOLOGY: TOWARD A SIMPLER LIFE-STYLE. Rodale Press, 1977. $6.95. (Ad./a,b,c,d)

An excellent handbook of people-oriented ideas, tools, and attitudes which anyone interested in education, energy, environment, social and economic issues or a simpler lifestyle will find exciting. It provides a world picture of past, present and future technology.

Congressional Quarterly, Inc. ENERGY CRISIS IN AMERICA. C.Q., 1973. $4.00. (H.S., V.T., Ad./e)

A compilation of articles which originally appeared in CQ "Weekly Report" or Editorial Research Reports. The original date of publication appears on the first page of each chapter. An excellent source for building case studies on many aspects of the current crisis. Written for the layman so the text is not highly technical.

Congressional Quarterly, Inc. CONTINUING ENERGY CRISIS IN AMERICA. C.Q., 1975. $4.00. (H.S.,Ad./b,c,d)

A follow-up to Energy Crisis in America. Considers all aspects of energy concerns, from international implications, lost self-sufficiency, and alternative sources to who are the advisors influencing the decisions about this all-important problem. A must for anyone.

Consumers Guide (Ed.) ENERGY SAVERS CATALOG. Publications International, Ltd. (H.S., V.T./a,b,d)

Practical instructions for saving energy at home including water conservation and automobile. Besides the easy-to-follow directions, it includes materials necessary to do the job and a list of manufacturers.

Daniels, Farrington DIRECT USE OF THE SUN'S ENERGY. Yale University Press, 1964. $12.50. (H.S., Ad./a,d)

Covers all aspects of converting the sun's rays into mechanical or electrical power. Describes the full range of experimental work done to date of publication. Though dated, useful information and excellent history source.

Davis, A. J. and R. P. Schubert ALTERNATIVE NATURAL ENERGY SOURCES IN BUILDING DESIGN. Van Nostrand Reinhold Co., 1974. $6.95. (V.T., Ad./a,b,d)

Excellent resource for those who wish to design and build homes and structures which provide energy conversion and life support. Site selection, conservation, natural cooling, water power, wind power, solar energy, organic fuels and integrated systems are included topics. Good reference.

DeKorne, James B. THE SURVIVAL GREENHOUSE: AN ECOSYSTEM APPROACH TO HOME FOOD PRODUCTION. The Walden Foundation, 1975. $7.50 paper (V.T., Ad./a,b)

A family's research efforts centering around their greenhouse which includes construction, hydroponics, aquaculture and power requirements provided by wind and sun - all related as parts of an ecosystem. Easily applied by a beginner.

Dunstan, M. J. and P. W. Garlan. WORLDS IN THE MAKING: PROBES FOR STUDENTS OF THE FUTURE. Prentice-Hall, 1970. $6.50. (H.S., Ad./d,e)

Studying the energy crisis will certainly involve "probes...of the future." Teachers of English, science and social studies can all use this book (to the delight of their students).

In addition to excerpts from authors such as Alvin Toffler, Don Fabun, Robert Theobald, Arthur C. Clarke, Lewis Mumford and many others, there are cartoons, sketches, quotations inserts, and full-color photo-micrographs and photographs. The Teacher's Manual/Future File provides ideas, suggestions and "Other resources."

Related books:

Fabun, Don DIMENSIONS OF CHANGE, Macmillan, 1971.

Theobald, Robert AN ALTERNATIVE FUTURE FOR AMERICA-II, Swallow Press, 1970.

Eccli, Eugene (Editor) LOW-COST, ENERGY EFFICIENT SHELTER FOR THE OWNER AND BUILDER. Rodale Press, 1976. $5.95 paper. (H.S., V.T., Ad./a,b,c,d)

Improving one's housing to save energy and lower fuel bills is the purpose of this book. Whether building or renovating, the information provided allows you to choose how you want to live and to determine how much you want to do yourself. Excellent consumer information and resource for high school or college architecture courses.

Ehrlich, Paul R. and A. H. Ehrlich POPULATION, RESOURCES, ENVIRONMENT: ISSUES IN HUMAN ECOLOGY, 2nd edition. Freeman, 1972. $12.95. (H.S., Ad./d)

An introductory interdisciplinary text for a course on Man and his environment. Lengthy annotated bibliographies add to the book's value. Teacher's guide available.

The section on problems of food production ties in well with study of energy crisis. The following related books and articles can be used to expand this area:

Brown, Lester R. SEEDS OF CHANGE: THE GREEN REVOLUTION AND DEVELOPMENT IN THE 1970's. Praeger, 1970

Brown, L.R. & G.W. Finsterbusch MAN AND HIS ENVIRONMENT: FOOD. Harper, 1971

National Academy of Science-National Research Council RESOURCES AND MAN. Freeman, 1969. Sections 1, 4, & 5 discuss many aspects of the earth's carrying capacity for food energy.

Holdren, J. P. & P. R. Ehrlich GLOBAL ECOLOGY. Harcourt, 1971.

Pimental, David, et al. "Food Production & Energy Crisis" Science V. 182, 2 November, 1973.

Energy Policy Project of the Ford Foundation A TIME TO CHOOSE - AMERICA'S ENERGY FUTURE. Ballinger Publishing Co., 1974. $5.95. (Ad./b,c,d)

The result of a two year, 4 million dollar inquiry into the nation's energy crisis, this book offers the reader an "almanac" of information on America's energy problems and policies. It is a well-organized discussion of zero energy growth, employment, economic trends, utility regulations, research and conservation.

Environmental Action Foundation COUNTDOWN TO A NUCLEAR MORATORIUM. E.A.C. $3.00 paper. (Ad./c,d,e)

This collection of articles which analyze the issues of safety, economics, civil liberties and energy demand, present the case for a nuclear moratorium. It can provide the consumer with necessary information for decision making in this area.

Fisher, R ck and Bill Yanda THE FOOD AND HEAT PRODUCING SOLAR GREENHOUSE. John Muir Publishers. $6.00 (H.S., Ad./a,b,d)

Informative guide for greenhouses, their design, construction and operation, and the solar heating of homes. Includes sun movement charts.

Ford Foundation Energy Policy Project (Ed.) EXPLORING ENERGY CHOICES: A PRELIMINARY REPORT OF ENERGY POLICY PROJECT OF THE FORD FOUNDATION. F.F., 1974. (Ad./b,c,d)

This report presents an approach to energy problems and issues which hopefully will be useful to the public during this time when important energy decisions are being made.

Fowler, John W. (Dir.) ENERGY-ENVIRONMENT SOURCE BOOK. National Science Teachers Association, 1975. $4.00. (V.T./b,c,d,e)

A very complete source book, especially for teachers, including basic facts and issues and problems of energy. Includes quantitative information in many tables, illustrations, technical appendices, and a glossary.

Fuller, John G. WE ALMOST LOST DETROIT. Readers Digest Press, 1975. $8.95 hard cover/$1.95 paper. (Ad./c,d)

A blood-chilling, minute by minute account of a near disaster at the atomic reactor near Detroit, Michigan. It explores the entire atomic energy question - the dangers of the present drive towards solving our energy problems by use of atomic fission. It should be required reading for anyone concerned about the energy crisis and the welfare of his community and country.

Garvey, Dr. Gerald ENERGY, ECOLOGY, ECONOMY. W. W. Norton & Co., Inc. $8.95. (Ad./a,b,c,d)

Includes bibliographic references and glossary. A study of the adverse environmental effects of our growing levels of energy use. The exploitation of our natural resources without heed to conservation needs is outlined. The author feels we have the technological and economic means to make necessary changes.

Goodman, Paul and Percival COMMUNITAS: MEANS OF LIFELIHOOD AND WAYS OF LIFE. 2nd ed. rev. Vintage, 1960. $1.95. (H.S./c,d,e)

Discussions of the energy crisis will inevitably lead to consideration of differing life styles and their environmental impact. The three community prototypes detailed in this book would provide a dramatic way to approach such discussions.

Gray, Elizabeth and David Dobson GROWTH AND ITS IMPLICATIONS FOR THE FUTURE. The Dinosaur Press, 1975. $3.00. (H.S., Ad./c,d)

Discusses where continued growth will lead, the constraints on that growth, and how we adjust to those constraints - growth meaning energy, resource availability, environmental pollution, population, food, land and economic growth. Good selected reading as noted.

Grossman, Richard and Gail Daneker JOBS AND ENERGY. Environmentalists for Full Employment. $2.00. (H.S., V.T., Ad./d)

A well presented argument that energy production and consumption and employment levels are not directly related, i.e., increased energy consumption actually leads to unemployment and underemployment, and increased energy efficiency will lead to increased numbers of jobs.

Hackleman, Michael A. ELECTRIC VEHICLES, DESIGN AND BUILD YOUR OWN. Earthmind/Peace Press Pub. Co., 1977. $7.95. (H.S., V.T./a)

Step-by-step explanation of significant principles behind the design and construction of electrically powered vehicles. Oriented to the beginner without much background in physics and mechanics. Analysis and description of all parts and subsystem components in a typical vehicle, and how these relate to the whole operating system.

Hackleman, Michael THE HOMEBUILT, WIND-GENERATED ELECTRICITY HANDBOOK. Earthmind/Peace Press Pub. Co. $7.50. (H.S., V.T./a)

A complete step-by-step description (with illustrations) of how to build a wind generating energy machine and tower. Oriented to the beginner, who needs to know the basic physics of constructing the machine, component parts, and the tower. Emphasizes safety factors which must be considered in the process of construction.

Hackleman, Michael WIND AND WINDSPINNERS. Earthmind/Peace Press Pub. Co. $7.95. (H.S., V.T./a,b,d)

Complete step-by-step illustrated description of a "nuts and bolts" approach to construction of wind-electric energy producing system. Oriented to the person who has some background in the basics of applied physics and electricity. Includes bibliography and sources.

Halacy, D. S., Jr. COMING AGE OF SOLAR ENERGY rev. ed. Harper, 1973. $9.95. (J.H., H.S., Ad./a)

Recounts the history of solar energy use. Describes many new concepts and hardware for using solar energy. Illustrated with photos, drawings and charts. Readable, not too technical.

Related book:

Brinkworth, B. J. SOLAR ENERGY FOR MAN. Halstead, 1973.

Hammond, Allen L., et al. ENERGY AND THE FUTURE. American Association for the Advancement of Science, 1973. $9.95 hard cover/$4.95 paper. (Ad./c,d)

"That this country cannot afford to be without more energy options is the general thesis of this book...[It] seeks to discover and to assess the research technologies and research developments that will be the basis for future energy policies." Graphs, charts, tables, detailed glossary and lengthy bibliography in addition to a well-written text make this a most useful reference.

Harmin, Merrill, et al. CLARIFYING VALUES THROUGH SUBJECT MATTER: APPLICATIONS FOR THE CLASSROOM. Winston, 1973. $2.95. (H.S., V.T., Ad./c)

The "three-level teaching" method - facts, concepts and values - detailed in this book would make study of the current energy crisis and its many ramifications much more effective than the simple accumulation of facts. Students can be shown that their choices and consequent actions are important.

Related books:

Metcalf, L. E. (Ed.) VALUES EDUCATION.

Simon, Sidney et al. VALUES CLARIFICATION.

Hellman, Hal ENERGY IN THE WORLD OF THE FUTURE. Evans, 1973. $6.95. (J.H., H.S., Ad./d)

An excellent introduction to the current energy situation and the possibilities for the future. Includes a detailed bibliography and index.

Hinkelbein, Albert ENERGY AND POWER. Watts, 1971. $6.90. (J.H., H.S., Ad./e)

Historical rather than technical approach. Various sources of energy are described in short chapters, with many good photos and graphs illustrating nearly every topic and every given example. Suggests new ways of using energy and speculates on its future supply.

Related elementary books:

Blackwood, Paul PUSH AND PULL: THE STORY OF ENERGY rev. ed. McGraw-Hill, 1966. (E)

Fuchs, Eric WHAT MAKES A NUCLEAR POWER PLANT WORK. Delacorte, 1972. (E)

Harrison, G. R. FIRST BOOK OF ENERGY. Watts, 1965. (E)

Schneider, H. MORE POWER TO YOU. Scott, 1953. (E)

Holdren, John and Philip Herrera ENERGY: A CRISIS IN POWER (Sierra Club Battlebook Series) Sierra Club, 1971. $2.75. (H.S./e)

Thorough, readable, and well-documented treatment of the energy situation: technology, economics, environmental impact, and a history of utility-environmentalist confrontations. Already dated.

Related book:

Guitar PROPERTY POWER contains, among others, a detailed case history of confrontations between private citizens and the Connecticut Light & Power Company.

Jones, Robert M. and John E. Steinbrink A SURVEY OF PRECOLLEGE ENERGY EDUCATION CURRICULA AT THE STATE LEVEL. The Energy Institute. (H.S., Ad./e)

This survey was made to learn which state departments have energy education materials or programs, what the teacher learning characteristics of these materials are and how they can be obtained.

Kabbe, Fred and Lois Kabbe CHEMISTRY, ENERGY, AND HUMAN ECOLOGY. Houghton Mifflin Co., 1976. #11.95. (J.H., H.S./a,c,d,e)

Good introduction to the basic chemistry of our environment - both natural ecosystems and man's technology. A good presentation of energy sources, their conversion and use processes and the associated problems which face man today.

Kleeberg, Irene Cumming THE HOME ENERGY SAVER. Butterick Publishing Co., 1977. $3.95. (H.S., V.T./b,d,e)

Useful guide to saving energy in the home. Includes chapters on the basic principles for the use of energy, heating, cooling, decorating, use of appliances, the car, new energy sources, and the new use of old energy sources. A good glossary of energy terms.

Landt, Dennis CATCH THE WIND, A BOOK OF WINDMILLS AND WINDPOWER. Four Winds Press, 1976. $7.95. (H.S., Ad./a)

A history of windmills including presently developed technologies and wind machines developed to produce electrical energy. Includes illustrations and photographs.

Llewellyn, Dr. Anthony J. ALTERNATIVE ENERGY SOURCES: A GUIDE TO ALTERNATIVE ENERGY DEVICES. State of Florida, 1975. (J.H., H.S./a,b,d)

Presents energy as a concept and applies it to alternative energy sources for producing electricity from the standpoint of efficiency. Questions efficiency of petroleum-based energy production as compared to other sources.

Lovins, Amory B. SOFT ENERGY PATHS: TOWARD A DURABLE PEACE. Ballinger Publishing Co., 1977. $6.95. (Ad./c,d)

The energy crisis is a response to our excesses and wastefulness. Changes in our decisions on how to obtain and use energy are necessary and the author gives insight into a possible survival and a safe and agreeable future as well. Excellent information on costs and commentary on values. Includes a glossary. An important book.

Lovins, Amory B. WORLD ENERGY STRATEGIES: FACTS, ISSUES AND OPTIONS. Ballinger Publishing Co., 1975. $4.95 paper. (Ad./c,d)

A good source for those who want to study the energy problem. The choices among various energy sources are presented in an understandable but technical manner. The type of society we will have in the future, however, hinges on how much energy we think we need. This book is an excellent guide for those in the energy debate - everyone taking a stand.

Lovins, Amory B. and John H. Price NON-NUCLEAR FUTURES. Ballinger Publishing Co., Friends of the Earth, Inc., 1975. $5.95. (H.S., Col./a,b,c,d)

Outlines concisely the main technical grounds for ethical social and economic concern in a way intelligible to those without technical training. It supports its arguments with documented technical discussion that serves for the first time to introduce expert advocates of nuclear power, in their own idiom, to other views. An important book.

Makhigani, Arjun ENERGY AND AGRICULTURE IN THE THIRD WORLD. Ballinger Publishing Co., 1975. $6.95 paper. (Ad./a,b,d)

This is primarily a study of the problems and prospects of the developing countries as they give attention to the relationship between effective agricultural development and energy use. Although a technical analysis, it provides a good insight into the world food and fuel situation.

McCullagh, James C. (Ed.) PEDAL POWER IN WORK, LEISURE, AND TRANSPORTATION. Rodale Press, 1977. $4.95 paper. (H.S., V.T., Ad./a,b,d)

Loaded with people-powered devices, this is a very practical book as it suggests scores of tasks which can be easily and effectively accomplished with pedal devices. Students interest in designing useful products could be developed with a resource such as this.

McGuigan, Dermot HARNESSING WATER POWER FOR HOME ENERGY. Garden Way Publishing Co., 1978. $4.95. (H.S., V.T./b,c,d)

This book tells how to figure the potential power of your site, what system is most suited and what the payback is. Written for the layman, it includes the laws relating to hydropower. An annotated directory of manufacturers and a bibliography.

McGuigan, Dermot HARNESSING THE WIND FOR HOME ENERGY. Garden Way Publishing Co., 1978. $4.95. (H.S., V.T./a,d)

Tells how to measure the wind potential of a site, methods for figuring costs and payback. Includes annotated list of manufacturers and restorers, agents and bibliography.

McHale, John THE ECOLOGICAL CONTEXT rev. ed. Braziller, 1970. (Ad./a,e)

This book deals with the "life support" systems of the physical environment -- energy and materials. A particularly rich source of charts, graphs and diagrams as well as lengthy reading lists. Teachers.

Meadows, Donnella, et al. THE LIMITS TO GROWTH. A REPORT FOR THE CLUB OF ROME'S PROJECT ON THE PREDICAMENT OF MANKIND. Universe Books, 1974. (H.S., Ad./b,c,d)

A non-technical report of the findings of a study by an international team of researchers at MIT of the implications of continued worldwide growth. They fed the five basic factors that determine, and ultimately limit, growth - population increase, agricultural production, nonrenewable resource depletion, industrial output and pollution generation - into a global computer model. They then tested the behavior of the model under several sets of assumptions to determine alternative patterns for mankind's future. Required reading for any Global, Futures or Social Studies program and any concerned person.

Merrill, Richard, et al. ENERGY PRIMER. Portola Institute, 1974. $4.50. (H.S., V.T., Ad./a,b,d)

A comprehensive, fairly technical book about renewable forms of energy - solar, water, wind and biofuels. The biofuels section covers biomass energy, agriculture, aquaculture, alcohol, methane and wood. The focus is on small scale systems which can be applied to the needs of the individual, group or community. Good book reviews, illustrations, diagrams, and lists of hardware sources.

Mobil Oil Corp. A CHALLENGE FOR NOW. A NATIONAL ENERGY POLICY. M.O.C., Free. (H.S., Ad./d)

Packet of information on oil, including a small dictionary of oil terms and previously published articles.

Moran, Joseph M., et al. AN INTRODUCTION TO ENVIRONMENTAL SCIENCES. Little, Brown, 1973. $11.95. (H.S./e)

An introductory text for college students that could be used by high school students. The sections on "Human Carrying Capacity: Food Energy" and "Human Carrying Capacity: Industrial Energy" are particularly applicable here. Instructor's manual available.

Morgan, Richard NUCLEAR POWER THE BARGAIN WE CAN'T AFFORD. Environmental Action Foundation, 1977. $3.50 paper. (Ad./c,d)

Necessary reading for anyone wishing to be able to understand and communicate the nuclear power problem. Includes reference list.

Morgan, Richard, Tom Riesenberg, Michael Troutman TAKING CHARGE - A NEW LOOK AT PUBLIC POWER. Environmental Action Foundation, 1976. (H.S., Ad./c,d)

The authors feel that public ownership of electric utilities may provide a solution to the power companies' never ending cycle of higher rates, more power plants and greater environmental harm. A little about the history of the private utilities and a lot about improving regulations governing them. A handbook to guide communities towards private ownership.

Murphy, John A. THE HOMEOWNERS ENERGY GUIDE: HOW TO BEAT THE HEATING GAME. Thomas Y. Crowell Co., 1976. $9.95. (Ad./a,b)

A major effort has been made by the author to provide methods for reducing home heating costs through proper construction, insulation, and selection of heating equipment. It is an easy-to-follow and valuable reference for the home builder or home owner.

National Science Foundation SOLAR ENERGY AS A NATIONAL RESOURCE. NSF/NASA, 1973. (H.S., Ad./d,e)

In this report are compiled recommendations by over forty scientists on the potential of solar energy and related research development programs. Order from: Solar Energy Panel (see address section).

Odum, Howard T. and E. C. Odum ENERGY BASIS FOR MAN AND NATURE. McGraw Hill Publishing Co., 1976. $12.95. (H.S., Ad./a,b,d)

An innovative book on energy systems. An excellent discussion of energy principles, energy flow, and the energy basis for humanity in the future with both individual and international relationships. A section on activities allows involvement and decision making for students.

Odum, Howard T. ENVIRONMENT, POWER, AND SOCIETY. Wiley-Interscience, div. of John Wiley & Sons, Inc., 1971. $5.95. (Ad./b,c,d)

In this book, energy language is used to consider the pressing problem of survival as this relates to the partnership of man in nature. An effort is made to relate energy analysis to questions of law, economics, religion, etc. Models are made showing pathways of energy and work. Simulation allows model to be tested as to its reality to the true world situation. Book uses elementary concepts of math.

Office of Energy Conservation THE BILLPAYER'S GUIDE TO FURNACE SERVICING. Conservation Books, 1975. (H.S., V.T., Ad./a,b,e)

Very good detailed explanation of the servicing procedure on gas and oil furnaces. Can provide the consumer with the know-how to save fuel and check on the serviceman. Includes gas and oil furnace efficiency calculator.

Office of Energy Conservation THE GARBAGE BOOK. Conservation Books, 1977. (H.S., V.T., Ad./b,c,d)

A good guide to conservation of resources by applying the 3 r's: reject, re-use and recycle. Save on packaging, get more out of consumer products and cut food waste are chapters with much good information.

Office of Energy Conservation 100 WAYS TO SAVE ENERGY AND MONEY IN THE HOME. Conservation Books, 1975. (H.S., V.T., Ad./b,c)

Many pointers for conservation of energy through proper home heating and insulation. Water heating, appliances, lighting, cooling and recycling are also covered. A handy reference and reminder for the consumer.

Papanek, Victor DESIGN FOR THE REAL WORLD: HUMAN ECOLOGY AND SOCIAL CHANGE. Pantheon, 1971. $8.95. (H.S., V.T./c,d,e)

"Design can and must become a way in which young people can participate in changing society." The Industrial Arts teacher will find a challenge in Papanek's philosophy, and material for thoughtful classroom discussions that involve the social ramifications of industrial design and the positive contributions students can make.

Related article:
ENVIRONMENT April '73 "Low Energy Living"

President's Materials Policy Commission RESOURCES FOR FREEDOM (Washington: 1952) (H.S., Ad./b,d)

This historical document shows that more than 26 years ago many of the energy problems now facing us were foreseen and pointed out. Advice was given for dealing with the problems but it went unheeded. A useful document to help gain historical perspective on current energy issues.

Ridgeway, James THE LAST PLAY, THE STRUGGLE TO MONOPOLIZE THE WORLD'S ENERGY RESOURCES. E. P. Dutton & Co., Inc., 1973. $10.00. (H.S./d)

Describes the organization and history of energy trusts, examines the political and mercantile thrusts of energy corporations and their relation with the U.S. Government, reveals the emerging influence of China in the energy trade and the Soviet Union's play for control of Western Europe's gas markets. It concludes with a proposal for citizen control of energy sources. An excellent research reference.

Risser, Hubert E. THE U.S. ENERGY DILEMMA: THE GAP BETWEEN TODAY'S REQUIREMENTS AND TOMORROW'S POTENTIAL. Illinois State. (H.S./a,d)

Study of current and recent MST energy demands in the U.S., discussion of trends in energy consumption, 1920-present, related to coal, oil, natural gas, hydro and nuclear. Projections for future energy production and consumption patterns, and sources for obtaining the materials to produce this energy. Environmental quality implications in the production of this energy.

Rockcastle, Verne, N., et al. STEM SCIENCE: SPACE, TIME, ENERGY, MATTER. Addison-Wesley, 1977. (E./a,c,e)

An abundantly illustrated resource about animals, plants, people, time, energy and matter. Excellent concept and response activities in a "try this" format.

Schurr, Sam H. (Ed.) ENERGY, ECONOMIC GROWTH AND THE ENVIRONMENT. John Hopkins Press, 1972. $12.00 hard cover/$2.95 paper. (Ad./d,e)

Papers presented at a forum conducted by Resources for the Future, Inc. April, 1971. A fundamental reference for teachers. Resources for the Future publishes many timely reports. Write for a current list available from John Hopkins Press.

Related book:

Landsberg, H. H. ENERGY IN THE UNITED STATES: SOURCES, USES AND POLICY ISSUES. Random, 1968.

Scientific American ENERGY AND POWER. Freeman, 1972. $4.50 (H.S., Ad./e)

A compilation in book form of the complete textual and illustrative content of the September 1971 issue of Scientific American covering the chief issues of the energy crisis. Important background reading for teachers in all fields. Individual articles from this book and others pertinent to the same topic are available from W. H. Freeman & Co. Write for list of Scientific American Offprints.

Related book:

Technology Review ENERGY TO THE YEAR 2000. MIT Press, 1972.

Scientists' Institute for Public Information SEMINAR ON ENERGY CONSERVATION EMPLOYMENT AND THE ECONOMY. S.I.F.P.I. (H.S., V.T./b,d)

Reports of a panel of experts on energy conservation employment and alternate employment opportunities in energy conservation. Important views.

S.I.F.P.I. CONGRESSIONAL SEMINAR ON THE POTENTIAL FOR SOLAR AND WIND ELECTRIC POWER GENERATION. S.I.F.P.I. (H.S./b,d)

Important opinions on our future energy options by experts in the field.

S.I.P.F.I. CONGRESSIONAL SEMINAR ON THE ECONOMIC VIABILITY OF NUCLEAR ENERGY. S.I.F.P.I. (H.S./a,d)

Important reports of informed persons on the value of nuclear energy as a future alternate source. Appendix contains charts on comparative costs.

S.I.F.P.I. NUCLEAR POWER ECONOMICS AND THE ENVIRONMENT. S.I.F.P.I. (H.S./a,d)

Good series of reprints from Environment magazine on nuclear power, its cost and safety. Background information on this and the energy crisis. Reference to related articles in Environment magazine.

Shelton, Dr. Jay W., Andrew Shapiro (Eds.) THE WOODBURNERS ENCYCLOPEDIA. Vermont Crossroads Press, 1978. $6.95. (H.S., V.T., Ad./a,b,d)

A very informative book on all the technologies relating to cooking and heating with wood. Large sections on manufacturers and importers and specifications.

Steadman, Philip ENERGY, ENVIRONMENT AND BUILDING. Cambridge University Press, 1975. $5.95. (H.S., V.T., Ad./a,b,d)

Makes a survey of methods for the conservation of energy in buildings as well as ways buildings may be designed so as to have a less destructive impact on the natural environment. A short history of experiments and past developments is included. Detailed lists of buildings, manufacturers of equipment, information sources and an extensive bibliography are included. The scope is world-wide but the emphasis is on the U.S. An excellent book.

Sterland, E. G. ENERGY INTO POWER: THE STORY OF MAN AND MACHINES. Natural History Press, 1967. (J.H., H.S./e)

History, studied as the reflection of man's search for ways to exploit more and different sources of energy, can be made more vital for today's students. How man has achieved success, and how he continues the search is set forth in this book in a colorful format replete with charts, tables and colored illustrations.

Stoner, Carol Hupping (Ed.) PRODUCING YOUR OWN POWER - HOW TO MAKE NATURE'S ENERGY SOURCES WORK FOR YOU. Rodale Press, 1974. $8.95. (H.S., V.T., Ad./a,d)

Looks at alternative sources of energy, wind and water power, organic matter such as wood and farm wastes, and solar. People in the field discuss their designs and experiment with small scale power conservation in existing structure, sources, conversion tables and a good bibliography.

Thekaekara, Matthew P. (Ed.) THE ENERGY CRISIS AND ENERGY FROM THE SUN. Institute of Environmental Sciences, 1974. $6.00. (Ad/a,d)

A series of papers presented at a symposium on solar energy utilization. Provides good information on the possibilities of solar thermal and solar electric conversion devices for future power needs.

Torrey, Volta WIND-CATCHERS - AMERICA'S WINDMILLS OF YESTERDAY AND TOMORROW. Stephen Greene Press, 1976. $12.95. (V.T., Ad./d)

Primarily a presentation of historical development and use of the windmill in several countries. It, however, suggests the new emphasis which wind power may have in tomorrow's search for alternatives to non-renewable energy sources. Very readable commentary on pioneering in this field.

van Dresser, Peter HOMEGROWN SUN DWELLINGS. The Lightning Tree, 1977. $5.95 paper. (H.S., V.T., Ad./a,b,d)

A very good introduction to solar energy use in home comfort, food production and water heating. Detailed designs and construction techniques are provided in the appendices.

Vivian, John WOOD HEAT. Rodale Press, 1976. $4.95 paper. (V.T., Ad./a,d)

A very complete presentation of wood burning stoves and fireplaces. The economics and environmental aspects of harvesting and burning of wood as an alternate fuel are given thorough coverage. Fire safety, along with stove, fireplace and chimney repair are included. Bibliography and manufacturers included.

Wade, Alex and Neal Ewenstein 30 ENERGY-EFFICIENT HOUSES...YOU CAN BUILD. Rodale Press, 1977. $8.95 paper. (H.S., V.T., Ad./a,d)

The book for those who want to build something more reasonable than what is commonly offered on the commercial market. An excellent example of what can be done to make construction simpler and cheaper, while providing tasteful accomodations for a family. Use by art, architectural and design students is recommended. Bibliography.

Wallace, Daniel (Ed.) ENERGY WE CAN LIVE WITH. Rodale Press, Inc. $3.95. (H.S./a,b,d)

Interesting collection of articles containing information on the obvious forms of energy for the home, in agriculture, and for personal use.

Watson, Donald DESIGNING AND BUILDING A SOLAR HOUSE: YOUR PLACE IN THE SUN. Garden Way Publishing Co., 1977. $8.95 paper. (H.S., V.T., Ad./a,b,d)

A very complete reference on solar homes. Necessary information on climate, collector design, active and passive heating systems, conservation, and construction costs. Numerous appendices provide references, extensive illustrated list of solar homes in the U.S., solar designers, and design calculations.

Wells, Malcolm ENERGY ESSAYS. Edmund Scientific Co., 1976. $5.95 paper. (H.S., Ad./c,d)

A delightful but serious commentary on man's relationship with the environment. Excellent essays on all aspects of our energy resource management provide not only new viewpoints but also road signs for a new lifestyle.

Workshop on Alternative Energy Strategies (Report of) ENERGY - GLOBAL PROSPECTS 1985 - 2000. McGraw Hill Book Co., 1977. $6.95. (Ad./b,c,d)

A project sponsored by the Massachusetts Institute of Technology to study and present information on the alternative strategies which the world's production/consumption activity may take in our energy future, both for industrialized and developing economies.

Yanda, William F. SOLAR SUSTENANCE PROJECT - PHASE II, FINAL REPORT. S. S. P. Inc. (H.S., V.T., Ad./a,b,d)

A practical guide for interested homeowners building their own greenhouses for the prime purpose of growing their own vegetables. Gives cost estimates for labor and materials, plus estimates for heating and potential savings for the family food budget.

Young. Louise B. POWER OVER PEOPLE. Oxford University Press, 1973. $3.50 paper. (H.S., V.T., Ad./c,d)

The hazards of electric power transmission lines are numerous. The electric power industry's brutal treatment of human and environmental rights are aptly demonstrated. A good guide to understanding the need for protective legislation. Includes bibliography.

II. BOOKLETS

Ackerman, Allan D. et al. IN THE BANK - OR UP THE CHIMNEY? A DOLLAR AND CENTS GUIDE TO ENERGY-SAVING HOME IMPROVEMENTS. ABY Associates, Inc., 1975. $1.00. (H.S., V.T., Ad./b)

An excellent energy saving guide to home improvement. The step-by-step installation methods that are illustrated for each option combine materials and installation techniques that are meant to be safe, permanent and cost-effective.

Anderson, Calvin E. SCHOOL PLANT ENERGY TASK FORCE PLAN FOR CONSERVATION: THE TEAM APPROACH. Colorado Dept. of Education. (H.S., V.T., Ad./a,b,c)

A step-by-step guide to saving energy in school buildings and within a school system.

Angelo, Joseph A., Jr. STAMPS TELL THE STORY OF NUCLEAR ENERGY. ERDA, 1975. Free. (H.S./a)

The story of nuclear energy is illustrated with commemorative stamps from all over the world. Space for an album collection and a list of nuclear stamps are provided. Good use of stamp collecting interests as a base for the study of energy.

Asimov, Isaac WORLDS WITHIN WORLDS: THE STORY OF NUCLEAR ENERGY VOLUMES 1, 2 AND 3. ERDA, 1972. Free. (H.S., Ad./e)

A history of nuclear energy from the ancient Greeks to the present. Good introduction to the concepts of energy.

Backhus, Dewayne ENERGY, AN UNAPPRECIATED COMMODITY. Kansas School Naturalist, Vol 22, April 1976. Free. (H.S./b,d)

A brief treatise on current means of energy production in the U.S., percentage increases each year, estimations of petroleum reserves still available, and projections of how long supplies will last based on continued increases in energy demands each year.

Canada, Office of Energy Conservation KEEPING THE HEAT IN. Southam Murray Printing. Free. (J.H., H.S., V.T./b,e)

An attractive publication demonstrating the need for re-insulating a home. Useful charts and good information on energy loss, savings and use.

Channing L. Bete Co., Inc. ENERGY CRISIS. C.L.B., 1974. 50¢. (E./b,d)

A simple review, with diagrams, of how we produce energy from fossil fuels, what we use it for, how we have dramatically increased consumption, how costs for production have increased and why, what we must do in the future to insure continued production of energy.

Clark, Barbara BECOMING AN ENVIRONMENTALIST OR HOW I LEARNED TO STOP WORRYING AND LOVE THE ENERGY CRISIS. Cottonwood Publishing Co., 1976. $3.00. (E., J.H., H.S./b)

An interesting, informative account of a family coming to grips with the energy crisis. Depicts the starting point of a family's energy and food consuming habits, analyses possible energy waste, explains solutions enacted to minimize energy usage. Includes appendix of home cooked foods.

Dindal, Dr. Daniel L. ECOLOGY OF COMPOST. New York State College of Environmental Science and Forestry. 25¢. (J.H., H.S., V.T./a,b)
An overview, in layman's context, of the principles and practices of composting. It stresses that every home gardener should make good use of ordinary household garbage and biodegradable wastes through composting.

Eaton, William W. ENERGY TECHNOLOGY. ERDA, 1975. Free. (H.S., V.T./a,b,d)
General information is provided about our various energy resources, methods of storing and transmitting energy, and planning for intelligent use of energy in the future.

Eaton, William W. ENERGY STORAGE. ERDA, 1975. Free. (H.S., V.T./a,b,d)
Present and proposed methods of improving energy storage are included - batteries, water storage, compressed air, flywheels, magnetic, hydrogen, thermal. Good reading.

Eaton, William W. GEOTHERMAL ENERGY. ERDA, 1975. Free. (H.S., V.T./a,b,d)
Includes the process of using geothermal energy to produce electricity, new geothermal technology, environmental effects and economic considerations.

Eaton, William W. OIL. ERDA, 1977. Free. (H.S., V.T./a,b,d)
Present and future production of oil is considered in relation to growing demand and decreasing supplies.

Eaton, William W. SOLAR ENERGY. ERDA, 1976. Free. (H.S., V.T./a,b,d)
A good introduction to solar thermal and solar electric conversion devices. Prospects for more effective use of this vast resource to replace fossil and nuclear fuels are discussed.

Eccli, Eugene and Sandra Eccli SAVE ENERGY: SAVE MONEY!. Community Services Administration, 1977. (H.S., Ad./b)
Good hints and basic procedures for improving the comfort of a home and saving heat, energy and money.

Energy Research and Development Administration ENERGY AND THE ENVIRONMENT, CITIZENS' WORKSHOP HANDBOOK. ERDA. Free. (J.H., H.S., V.T./b,d)
Designed to acquaint the public with the complexities of the energy-environment situation. Discusses how energy consumption has dramatically increased in 100 years, how the U.S. consumes much more than its fair share. Also discusses current and future anticipated petroleum supplies. Discusses pollution and also relates to possible energy sources in the year 2000 A.D.

Florida State Department of Education ENERGY AND THE ENVIRONMENT. F.S.D.E. Office of Environmental Education. (J.H., H.S., V.T./a,b,c,d,e)
These units were designed for teachers to open a new content area within the subject matter currently taught. They were developed by Florida teachers to help better understand energy, energy conservation, and lifestyles. The activities can be adapted for all levels.

Fortune Magazine NUCLEAR ENERGY AND THE FUTURE. F.M. $3.00. (H.S., Ad./a,d)

Five position papers dealing with industry's view of the current and future energy situation and its impact on our economy and way of life.

Friend, Gil and David Morris KILOWATT COUNTER - A CONSUMER'S GUIDE TO ENERGY CONCEPTS, QUANTITIES, AND USES. Alternative Sources of Energy, 1975. $2.00. (J.S., H.S., V.T./b,c,d)

Defines what energy is, how it's used, measured, conserved and wasted. Explains potentials of alternative sources of energy. Useful information.

Hayes, Denis ENERGY: THE CASE FOR CONSERVATION. Worldwatch Institute, Jan. 1976. $2.00. (Ad./b,c,d)

Excellent suggestions for conservation of energy - our best and most immediate way to provide for future needs. All segments of energy use are covered and a personal energy conservation guide is provided.

Hayes, Denis NUCLEAR POWER: THE FIFTH HORSEMAN. Worldwatch Institute, May 1976. $2.00. (Ad./c,d)

A thorough examination and evaluation of nuclear power in terms of economics, safety, adequacy of fuel supplies, environmental impact, and both national and international security.

Hayes, Denis, ENERGY: THE SOLAR PROSPECT. Worldwatch Institute, March 1977. $2.00. (Ad./c,d)

The present and future applications for solar energy are presented in detail. An excellent discussion of solar resources in the form of wind power, water power, biomass, and direct sunlight.

League of Women Voters Education Fund ENERGY FACTSHEETS. L.W.V.E.F., 1974. 20 Factsheets/$1.00. (H.S., V.T., Ad./b,c,d)

An excellent series of information sheets and booklets which can readily be used for individual action guidelines or group discussion material.

Living Systems DAVIS ENERGY CONSERVATION REPORT: PRACTICAL USE OF THE SUN. L.S., April 1977. (H.S., Ad./a,b,c,d,e)

Interesting report of an energy conservation study done for Davis, CA. It suggests a possible 50% reduction in energy consumption if the recommendations were to be implemented by the town. Building codes, land use, transportation, solar housing and public education are the main focal points for analysis and action.

Massachusetts Department of Education APPROACHES TO THE CONSERVATION OF ENERGY IN THE PUBLIC SCHOOLS. M.D.E., 1975. Free. (E., J.H., H.S., V.T., Ad./a,b)

Five booklets on energy conservation in the public schools. Information, bibliography, activities.

Miller, Alan S. et al. SOLAR ACCESS AND LAND USE: STATE OF THE LAW 1977. National Solar Heating and Cooling Information Center. Free. (Ad./d)

Prepared as part of the larger study, Legal Barriers to Solar Heating and Cooling of Buildings. It provides a summary description of solar access rights for various residential, commercial and industrial structures. Passive as well as active solar systems are considered.

Morgan, Richard and Sandra Jerabek HOW TO CHALLENGE YOUR LOCAL ELECTRIC UTILITY: A CITIZEN'S GUIDE TO THE POWER INDUSTRY. Environmental Action Foundation, 1974. $3.50. (H.S., V.T., Ad./b,c,d)

This booklet is a direct challenge to the power industries rate structure and presents a good case for energy conservation and the need for consumer involvement in organized groups of concerned citizens. Good reference list.

New Mexico Department of Education ENVIRONMENTAL EDUCATION MANUAL FOR NEW MEXICO TEACHERS. N.M.D.E. (E., J.H., H.S./e)

An essay on the definition of environmental education, its scope and parameters, relation to all learning, and its universal application to human and non-human life. Designed to give the teacher solid insight into the field, and stimulate individual thought.

New York, University of the State of ENVIRONMENTAL QUALITY: A COMMUNITY CONCERN. New York State Education Department. (H.S., V.T., Ad./a,b)

This publication is provided as a proposed format, and as a group of content and activity suggestions for environmental awareness and action seminars for communities through secondary and continuing education programs. Transportation, land use, and energy consumption and conservation are among the areas covered. Very good resource and guide.

Park, Jack SIMPLIFIED WIND POWER SYSTEMS FOR EXPERIMENTERS. Helion Inc., 1975. 2nd ed. 1977. $6.00. (H.S., V.T., Ad./a,d)

A most complete guide to design and construction of wind machines. Easy to read and well illustrated.

Prenis, John ENERGY BOOK #1. Running Press, 1975. $4.00. (H.S., V.T./a,d,e)

An overview of possible alternate sources of energy, some practical applications and some not so practical. Each chapter contains basic design information and actual home built energy sources. A good selected bibliography.

Ennis, John ENERGY BOOK #2. Running Press, 1977. $5.00. (H.S., V.T./a,d,e)

This contains additional possibilities for alternate sources of energy. Some of these applications are a little more technical than #1. Includes bibliography and manufacturers directory.

Silverstein, Michael THE ONCE AND FUTURE RESOURCE (A HISTORY OF SOLAR ENERGY). Energy Marketing Associates, Inc., 1977. (H.S./a,d)

A short history of solar energy.

Smith, William H. and John G. Stall COAL AND WATER RESOURCES FOR COAL CONVERSION IN ILLINOIS. Illinois State Water and Geological Survey, 1975. (H.S., Ad./b)

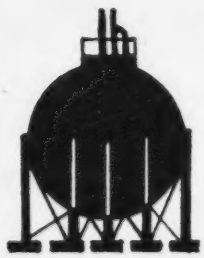
A comprehensive inventory, with maps, of coal layers, reserves, locations, groundwater, and subsurface resources in Illinois. Overlaying of both reserves for the purposes of possible conversion of coal to gas in the future. Could be used as a guide to making a state's resource study.

South Carolina Department of Education THE ENERGY BOOK. S.C.D.E. (E., J.H., H.S., V.T./b,e)

A sampling of activities that can be used with individuals, small groups or large classes to increase awareness of the energy situation. Includes list of related resources and references.

Yanda, Susan B. and W. F. AN ATTACHED SOLAR GREENHOUSE IN ENGLISH AND SPANISH. The Lightning Tree, 1976. $2.00. (H.S., V.T., Ad./a)

A discussion of how best to build one's own greenhouse, taking into account solar angle, insulation needs, foundation, etc.



III. PERIODICALS/ARTICLES

ACORN. (H.S., V.T., Ad.)
One of 10 regional newsletters funded by the National Center for Appropriate Technology. Covers activities on appropriate technology developments in the midwest.
Publisher: Governors State University
$6.00/yr. individual, $10.00 institutional. 10 issues/year.

ALTERNATIVE SOURCES OF ENERGY. (H.S., V.T., Ad./b,c,d)
Each issue contains a wide spectrum of practical information concerned with the development of alternative environmental technologies in energy sources, agriculture, architecture, transportation and communication.
Publisher: Alternate Sources of Energy
$10.00/yr. Bimonthly.

*THE AMERICAN BIOLOGY TEACHER. V. 39, No. 7. October, 1977. "ENERGY SYSTEMS EDUCATION". Elizabeth C. and Howard T. Odum. (H.S./a,e)
An explanation of how to introduce energy systems into the classroom.
Publisher: The American Biology Teacher

*AUDUBON. V. 72, No. 4. July, 1971. "LIVE BETTER ELECTRICALLY". (H.S., V.T., Ad./c)
This brief article, emphasizing the aesthetic destruction that would occur by a proposed power plant siting in a New England valley, could bring up for discussion another facet of the energy problem, namely aesthetics and the choices to be made.
Publisher: National Audubon Society
$10.00/yr. 6 issues. Single copies $2.00.

*BETA GAMMA SIGMA. "OUR NATION'S ENERGY POLICIES: ARE WE ON THE RIGHT TRACK?" Dr. Lewis D. Conta. (H.S., V.T., Ad./b,d)
Presents nation's problem of dependence on petroleum and why the government's efforts to increase this and other energy sources are subject to serious constraints. Author proposes three courses of action which the nation should be taking to address its present and future energy needs.

CASCADE.
NCAT journal for the Pacific Northwest. Covers regional alternate energy and land use activities.
Publisher: Cascade
$10.00. 10 issues. (Free to people doing community work.)

*CATALYST FOR ENVIRONMENTAL QUALITY. V. 11, No. 3. (H.S., V.T., Ad./c,d)
Entire issue devoted to pros and cons of the use of nuclear power. Not too technical for high school students.
Publisher: Catalyst Magazine
$5.00/yr. Quarterly. Students $3.00/yr.

*C.F. LETTER. June, 1972. (H.S., V.T., Ad./d,e)
An overview of the nation's energy problems. Discusses the political, social and economic dimensions of the topic with prospects for action. Could serve as basic outline for secondary classwork.
Publisher: Conservation Foundation
$6.00/yr. Single copy 60¢.

*CONSERVATION LEADER. December, 1972. "TRY AN ENERGY DIARY". (E., J.H., H.S./b,e)
The method outlined in this article is adaptable to both elementary and secondary levels. It will provide the basis for a worthwhile project that will involve students and their parents as they figure out the amount of energy they are using, the ways it is used and its cost. They can then discuss the choices that must be made if they wish to economize.
Publisher: Massachusetts Audubon Society

*CONSERVATION NEWS. V. 38, No. 23. December 1, 1973. "GEOTHERMAL - THE DEVIL'S OWN BREATH". (J.H., H.S., V.T./d,e)
This is a short article on the development of a geothermal power plant in Big Sulphur Canyon, California, and the future for other such plants. Conservation News is a free, bi-weekly publication which highlights national news.
Publisher: National Wildlife Foundation

COUNTRY JOURNAL. (H.S., V.T., Ad./b,d,e)
Many good articles on energy use related to gardening and other agriculture, fuels and forests, architecture, transportation, electric power, health, waste disposal and conservation.
Publisher: Country Journal Publishing Co., Inc.
$10.00/yr.

CRITICAL MASS JOURNAL. (H.S., Ad./b,c,d,e)
Readable in-depth coverage of the nuclear power issue. Information on alternative sources of energy.
Publisher: Critical Mass Journal
$28.50. 12 issues.

THE CURIOUS NATURALIST. V. XIV, Nos. 4 - 9. (E., J.H., H.S., V.T./b,c,d,e)
#4 Fossil Fuels and the Future
#5 Solar Energy
#6 Energy From the Earth
#7 Energy From Waste
#8 Balancing Choices
#9 The Energy of Nature
Excellent, informative articles, suggestions for further reading and activities.
Publisher: Massachusetts Audubon Society
$4.00/yr. Published quarterly. Back issues listed above - 50¢ each.

ECOLOGIST. (Ad./b,c,d,e)
Covers a wide range of topics related to ecology. Population, pollution, energy, economics and the consumer are but a few. Good reading for adults of many different interests.
Publisher: The Ecologist
$12.00/yr. Monthly.

ECO-NEWS. (E./b,c,d,e)

An exciting newsletter prepared especially for urban education. Good ideas and activities for the classroom and outside. Includes free teacher's guide.

Publisher: Environmental Action Coalition
$3.00.

THE ELEMENTS. (Ad./b,c,d,e)

Major source of information on global energy issues, good statistical data.

Publisher: The Elements
$7.00 - 9 issues.

ENERGY REPORTER. (Ad./b,c,d,e)

A readable, factual reporting of government policy on energy. Some specific coverage of energy pricing issues.

Publisher: U.S. Department of Energy
Free.

ENVIRONMENT. (H.S., V.T., Ad./b,c,d,e)

Food and famine, health and disease, energy and conservation, pollution, waste - facts of our environment - are all given meaningful reporting in this publication.

Publisher: Scientists' Institute for Public Information
$12.75/yr. 10 issues.

*ENVIRONMENT. V. 14, No. 2. October, 1972. "FARMING WITH PETROLEUM". (V.T., Ad./c,e)

Modern farming uses energy-hungry machines instead of human labor. The result, which is economically efficient, has far-reaching effects in society and the environment. Reprints of this article and many others from ENVIRONMENT can be obtained from: Hackett Publishing Co.

*ENVIRONMENT. V. 14, No. 9. November, 1972. "GETTING IT TOGETHER". (H.S., V.T., Ad./c,d)

Communes use less energy, have less impact on the environment than families living separately. Other cultures show other possibilities - i.e., the Japanese communal bath, the Polish travel coupons for hitchhikers, and more. An intriguing article that would fuel many lively discussions.

Publisher: Scientists' Institute for Public Information
$10.00/yr. 10 issues.

*ENVIRONMENT. V. 14, No. 8, October, 1972. "A MATTER OF DESIGN". (V.T., Ad./a,b,e)

How to construct and operate public buildings without wasting a lot of steel, concrete and energy. There is an opportunity here for student analysis of local building codes and on-site observation of home and commercial building. This ties in with the Dollars and Cents of Residential Utilization cited in the Teaching Guides section. See also article from the October, 1973 Smithsonian cited below.

*ENVIRONMENT. V. 15, Nos. 1-10. January - December, 1973. (H.S., Ad./b,c,d,e)

Every issue of the 1973 ENVIRONMENT has one or more articles pertaining to the energy crisis. The entire November issue is devoted to it. These articles are very readable and non-technical.

ENVIRONMENTAL ACTION. (H.S., Ad./b,c,d,e)

Major coverage of environmental quality issues including energy.
Publisher: Environmental Action
$15.00. 24 issues.

ENVIRONMENTAL EDUCATION REPORT. (H.S., Ad./b,c,d,e)

An excellent publication covering all aspects of environmental education. Includes good book and material reviews. The September, 1977 issue concerns itself with energy education.
Publisher: Environmental Education Report
$25.00.

ENVIRONMENT ACTION BULLETIN. (H.S., V.T., Ad./b,c,d,e)

Short summaries of activities and problems related to energy, agriculture and environmental pollution.
Publisher: Environmen Action Bulletin
$12.00/26 issues. (13 issues - $6.00)

EPA JOURNAL. (H.S., V.T., Ad./b,c,d,e)

Environmental protection is the big task described on all fronts -- labor and economics, energy, water, air, land and waste management. It is the government's reporter to the people on all aspects of environmental concern.
Publisher: U.S. Environmental Protection Agency
$8.75/yr. 10 issues/yr.

*FORTUNE. June, 1969. "POWER FROM THE EARTH'S OWN HEAT". (H.S., V.T., Ad./d)

The author paints an optimistic picture of the future of the generation of electricity from geothermal power. Use in conjunction with article on same topic cited under Science to gain understanding of international aspects.
Publisher: Time, Inc.
$12.00/yr. Monthly.

FUTURIST. (H.S., V.T., Ad./b,c,d,e)

American and world trends and future lifestyles are the major themes of the articles. Energy choices, shortages of natural resources, the poor and hungry, and other problems are approached with good information and a degree of optimism.
Publisher: World Future Society
$15.00/yr. ($12.00 for members. First year membership - $27.00)

*THE FUTURIST. V. VII, #5. October, 1973. "THE PROMISE OF FUSION POWER". (H.S., V.T., Ad./a,d)

The author is a most enthusiastic proponent of fusion power. Teachers and students will find this article a readable introduction to the processes of thermonuclear fusion. The August, 1972, V. VI, #4

issue has a lengthy section devoted to energy. The FUTURIST is a magazine that will appeal to most high school students and will offer teachers many new ideas.
Publisher: World Future Society

*THE FUTURIST. V. VI, #4. August, 1972. "ENERGY SOURCES FOR THE FUTURE". (H.S., V.T., Ad./c,d,e)
The author first considers the historical consumption of energy and then proceeds with the possibilities for the future. There are several most interesting graphs which would be useful in both social studies and science classes. This article would also be useful in conjunction with the World Environment Forecasting Module cited in Teaching Guides section.
Publisher: World Future Society

*THE JOURNAL OF ENVIRONMENTAL EDUCATION. V. 8, No. 3. Spring, 1977. "THE ILLINOIS PLAN FOR ENVIRONMENTAL EDUCATION AND ENERGY CONSERVATION". (J.H., H.S., V.T./c,d,e)
Energy concepts, which are an important part of environmental education, are discussed under five broad themes - interdependence, impact, maintenance, quality of life, and improvement. Suggested activities for both the junior and senior high school student are listed.
Publisher: Heldref Publications

*JOURNAL OF ENVIRONMENTAL EDUCATION. V. 8. No. 4. Summer, 1977. "TOWARD GOALS FOR MULTIDISCIPLINARY ENERGY EDUCATION". (Ad./e)
Very good for leaders - states the problem in energy; emphasizes that energy education must be taught in schools; lists concepts for an energy education curriculum (from Florida State energy conservation project).
Publisher: Heldref Publications
$10.00/yr. 4 issues.

JOURNAL OF THE NEW ALCHEMISTS. (V.T., Ad./b,c,d,e)
High quality information about energy - agriculture systems. Major articles on ecosystem development.
Publisher: Journal of the New Alchemists

MECHANICAL ENGINEERING. August, 1975. "COMING: THE REAL ENERGY CRISIS". Lewis D. Conta. (H.S., V.T., Ad./a,b,c,d)
Looks at the environmental consequences of depending on nuclear energy only for the future. Reveals the necessity for a vigorous conservation effort until solar energy, sea-thermal and/or another self-renewing system becomes commercially feasible.
Publisher: Mechanical Engineering

MOTHER EARTH NEWS. (H.S., V.T., Ad./b,c,d,e)
Truly "more than a magazine" as it is advertised. The most information you can find under one cover on alternative energy and lifestyles, ecology, nature and doing more with less.
Publisher: The Mother Earth News
$12.00/yr. Bimonthly.

*MOTHER EARTH NEWS. No. 17. September, 1972. "FREE POWER FROM THE WIND". (H.S., V.T., Ad./a,d)

Detailed descriptions of American and European windmill styles and their uses. This magazine is one of the best sources on alternate life styles, including new (and ancient) energy sources. Also:

"A MODEST METHANE EXPERIMENT". No. 20. March 1973
"SOLAR HEATER". No. 21. May 1973
"THE HYDRAULIC RAM PUMP". No. 22. July 1973

Publisher: Mother Earth News, Inc.
$6.00/yr. 6 issues. Single copy $1.25.

*THE NATION. V. 217, No. 14. October 29, 1973. "SOONER THAN YOU THINK: CLEAN POWER FROM THE SUN" (H.S., V.T., Ad./b,d,e)

Techniques of power generation and different ways in which solar energy can be utilized. Good supplementary information.

Publisher: Nation Associates, Inc., James Storrow, Jr.
$15.00/yr.

NATIONAL GEOGRAPHIC. (H.S., V.T., Ad./a,d,e)

Excellent coverage of our resource and energy development is provided in one or two articles each year.

Publisher: National Geographic Society
$10.00/yr.

NATIONAL GEOGRAPHIC-WORLD. (E., J.H./e)

Provides children with information for all interests. Like the National Geographic for adults, it covers nature's creatures and our world environment, man's inventions and institutions, and shows what kids can and are doing with their lives. Excellent games and activities suggested.

Publisher: National Geographic World
$5.85/yr. Monthly.

*NATIONAL WILDLIFE. V. 11, No. 5. Aug-Sept. 1973. "THE FASCINATING STORY OF FOSSIL FUEL". Isaac Asimov. (J.H., H.S., V.T./e)

Understanding the 65-million year process that made these fuels gives the current energy crisis a new dimension. The colorful pictorial charts would make excellent teaching aids.

Publisher: National Wildlife Federation
$6.50/yr. Bimonthly.

*NATURAL HISTORY. V. 87, No. 1. January 1978. "THE GREAT ENERGY STANDOFF". (J.H., H.S., V.T./c,d,e)

Minnesota farmers are attempting to block the building of high voltage power lines across their land for reasons of environmental and human concern. This periodical is excellent reading about our world and its people. It gives one an appreciation for our past and our possibilities. An occasional article on energy related matters will be found each year.

Publisher: Natural History
$10.00/yr. Monthly (October - May; bimonthly June - September).

*NATURAL HISTORY. V. LXXXII, No. 8. October, 1973. "MAN'S AGE-OLD STRUGGLE FOR POWER". (J.H., H.S., V.T./d,e)

"If history is any guide, there's light at the end of the energy crisis." The author traces energy shortages from Paleolithic times to the present and concludes that when one form of energy is exhausted, wits are sharpened to find another. See also Sterland ENERGY INTO POWER cited under Books and the film, THE GREAT SEARCH.

Publisher: American Museum of Natural History
$8.00/yr. 10 issues. Single copy $1.00.

NEW ALCHEMY INSTITUTE. (H.S., V.T., Ad./a,b,c,d)

A subscription membership includes current journal and newsletters. The Institute is concerned with the development of ecologically derived forms of energy, agriculture, aquaculture and housing. A good source for alternative energy information.

Publisher: The New Alchemy Institute
Subscription membership - $10.00.

*THE NEW HARBINGER. V. 4, No. 1. February, 1977. (H.S., V.T., Ad./b,c,d)

This is the second issue in two years on co-ops and energy. This issue has three articles:

"Electricity: Public Versus Private Power"
"The Once Bright Hope: The NRECA and Nuclear Power"
"Solar Energy for Housing: Getting the Grant"

*THE NEW HARBINGER. V. 2, No. 6. September, 1975. (H.S., V.T., Ad./b,c,d)

Several articles on energy:
"An Energy-Scarce Society: Politics and Possibilities"
"Power to Live By"
"Organizing to Procure Oil: Cooperation Among Cooperatives"
"Food for Crude: Canadian Comment on the IEC"
"A Call for Energy Resource Control"
"The International Connection: International Cooperative Petroleum"
"Expanding Services: Credit Union Gasoline in British Columbia"
"Energy Roles for Co-ops"

Publisher: North American Student Cooperative Organization
Write: The New Harbinger.
$8.00/volume. Quarterly.

NEW ROOTS. (H.S., V.T., Ad./b,c,d)

A publication concerned with appropriate technology and community self-reliance for the Northeast. Contains articles, news, book reviews, names of organizations and a calendar of A.T. happenings.

Publisher: University of Massachusetts
$8.00/yr. Bi-monthly.

*NEW YORK TIMES MAGAZINE. January 28, 1973. "NEW SHOWDOWN IN THE WEST". (H.S., Ad./c,e)

Relates feelings of people living in the counties where strip-mining is a real possibility. Very interesting psychology.

Publisher: New York Times Co.

NOT A MAN APART. (H.S., V.T., Ad./b,c,d,e)

Presents excellent articles on people learning to live in their environment. Much earth and energy news, good reading lists and reviews in each issue.

Publisher: Friends of the Earth

$12.00/yr. Semimonthly; or annual dues $25.00.

*NOT A MAN APART. V. 6, No. 20. November, 1976. ENERGY STRATEGY: THE ROAD NOT TAKEN". (H.S., V.T., Ad./b,c,d)

*NOT A MAN APART. V. 7, No. 16. September, 1977. "TOMORROW IS OUR PERMANENT ADDRESS". (H.S., V.T., Ad./d)

Two articles that are important reading for any study of nuclear energy, world energy needs and/or future needs.

Publisher: Friends of the Earth

PEOPLE AND ENERGY. (H.S., V.T., Ad./b,c,d,e)

Provides up-to-date information on energy, environmental protection and consumer concerns needed by citizen groups and individuals to address issues on both the national level and in their own communities.

Publisher: Center for Science in the Public Interest

$10.00/yr. for individual; $7.00 for low income.

*PEOPLE AND ENERGY. V. 1, No. 4. (H.S., Ad.)

Gives late news briefs related to latest energy developments as they relate to the federal government, states, organizations, companies, schools, and individulas.

*PHOENIX QUARTERLY. "THE HORN OF PLENTY KEEPS OVERFLOWING". (H.S., Ad./b,c,d,e)

Interesting article on the availability of iron and steel scrap, as of 1975, in the United States. Much of this material remains discarded and unrecycled, but a total recycling program could increase energy production/consumption efficiency in the U.S.

Publisher: The Institute of Scrap Iron and Steel, Inc.

*POPULATION BULLETIN. V. XXVI, No. 2. June, 1970. "POPULATION AND RESOURCES: THE COMING COLLISION" (H.S., Ad./b,c,d,e)

This issue deals with the global consumption of minerals, foods and fuels, and also points up the fallacies inherent in the American dream that Asians, Africans and Latin Americans have only to apply the U.S. economic philosophy to bring up their standards of living.

These bulletins, issued six times a year, provide teachers with excellent source materials. Slides of the tables and graphs are available. Teacher membership includes Population Bulletin, Population Profiles, Interchange and special reports.

Publisher: Population Reference Bureau

Teacher membership - $5.00/yr. Single copies of Bulletin 50¢.

RAIN. (Ad./b,c,d,e)

Major articles on political issues related to energy, land use and other environmental topics, clear technical information. Useful reviews on a broad range of books, articles and research studies.

Publisher: Rain

$10.00/10 issues. $5.00 low income.

RANGER RICK. (E./b,d,e)

A monthly nature magazine for children, it is a good introducation to the creatures of the world and their habitats - forests, deserts, rivers, oceans, prairies. Provides children with an understanding of and appreciation for nature as they become aware of and responsible for consumption and conservation.

Publisher: National Wildlife Federation
$7.00/yr. for membership in Ranger Rick Nature Club.

*RANGER RICK. "THE BEST PRESENT OF ALL". Oliver A. Houck. (E./d,e)

Informative reprint in "story" format on energy from the sun and earth. Many illustrations.

Publisher: National Wildlife Federation
Single copy - free. Additional copies 15¢ each.

SAN LUIS VALLEY SOLAR ENERGY ASSOCIATION NEWSLETTER. (H.S., V.T., Ad./b,d,e)

Includes newsletter and energy flashes.

Publisher: San Luis Valley Solar Energy Association
Membership $5.00. Business $10.00.

SCIENCE. (H.S., Ad./a,b,c,d,e)

Weekly magazine published by the AAAS, should be checked regularly by teachers and high school students. Many bits of information can be obtained from the sections "Research News," "News and Comments," letters and editorials.

Publisher: American Association for the Advancement of Science
$28.00/yr. Weekly.

*SCIENCE

The following groups of citations could be assembled for class readings or research references.

GROUP I:

Energy Options: Challenges for the Future. Sept. 8, 1972. v. 177
Geothermal Energy: An Emerging Major Resource. Sept. 15, 1972. v. 177
Solar Energy: The Largest Resource. Sept. 22, 1972. v. 177
Fission: The Pros & Cons of Nuclear Power. Oct. 13, 1972. v. 178
Energy Conservation. Oct. 27, 1972. v. 178
Electricity Demand Growth & The Energy Crisis. Nov. 17, 1972. v. 178
Conservation of Energy: The Potential for More Efficient Use. Dec. 8, 1972. v. 178
Energy Needs: Projected Demands and How to Reduce Them. Dec. 15, 1972. v. 178
Power Gas and Combined Cycles: Clean Power from Fossil Fuels. Jan. 5, 1973. v. 179
Energy Conservation. April 13, 1973. v. 180
Energy Efficiency (letter). July 13, 1973. v. 181
Energy Conservation Through Effective Utilization. July 13, 1973. v. 181

GROUP II;

Vermont: Forced to Figure in Big Power Picture. Oct. 1, 1971. v. 174
For A U.S. Energy Agency. June 16, 1972. v. 176
White House Energy Policy: Who Has the Power? March 23, 1973. v. 180
Britain & Energy Policy: Problems of Interdependence. June 29, 1973. v. 180

Energy Policy (letter). June 29, 1973. v. 180
Taxation and Energy Conservation (letter). July 13, 1973. v. 181
Alaska Pipeline: Congress Dear to Environmentalists. July 27, 1973. v. 181
GROUP III:
The Fast Breeder Reactor: Signs of a Critical Reaction. Apr. 28, 1973. v. 176
Nuclear Safety: At the AEC the Way of the Dissenter is Hard. May 5, 1972. v. 176
Human Costs of Nuclear Safety. Aug. 11, 1972. v. 177
Nuclear Safety (I): The Root of Dissent. Sept. 1, 1972. v. 177
Nuclear Safety (II): The Years of Delay. Sept. 8, 1972. v. 177
Nuclear Safety (III): Critics Charge Conflicts of Interest. Sept. 15, 1972. v. 177
Nuclear Safety (IV): Barriers to Communication. Sept. 22, 1972. v. 177
Publisher: American Association for the Advancement of Science
$30.00/yr. Weekly. Single copy $1.00 (back issues $2.00).

*SCIENCE (Special Edition). V. 184, #4134. April 19, 1974. (H.S., Ad./a,b,c,d,e)
Special edition devoted to energy. Includes impact of the energy crisis, policy, economics, the developed technology, the developing technology in energy, and a good bibliography.
Publisher: The American Association for the Advancement of Science

SCIENCE AND CHILDREN. (Ad./b,c,d,e)
Primarily used to stimulate interest in the elements of science and the tools man uses to study and explore the world. A good introduction to interactions between human and natural systems.
Publisher: National Science Teachers Association
$15.00/yr. 8 issues, September - May. Includes other publications.

SCIENCE NEWS. (J.H., H.S., V.T./d,e)
A weekly "newsletter" with occasional short statements on energy related topics.
Publisher: Science Service, Inc.
$12.50/yr. Weekly.

SCIENCE FOR THE PEOPLE. (H.S., Ad./c,d,e)
A bi-monthly magazine dealing with issues of science and technology from a radical perspective to sharpen political awareness and stimulate political action on these issues.
Publisher: Science for the People
$6.00 - 6 issues.

*SCIENCE AND PUBLIC AFFAIRS. V. 29, No. 4. April 1973. "ENERGY CONSERVATION AND WASTE RECYCLING: TAKING ADVANTAGE OF URBAN CONGESTION". (H.S., Ad./b,d,e)
Discusses ways of exploiting urban areas in terms of energy conservation - waste recycling. Fairly easy reading; very practical, useful for secondary school teachers.
Publisher: Educational Foundation/Nuclear Science

*SCIENCE AND PUBLIC AFFAIRS. V. 29, No. 7. September, 1973. "REALITIES OF THE ENERGY CRISIS". (H.S., Ad./c,d,e)

A discussion of the advantages and drawbacks of different energy sources. Also touches on social aspects, future needs or problems. Secondary teachers will find this valuable.

Publisher: Educational Foundation/Nuclear Science

*SCIENCE AND PUBLIC AFFAIRS. V. 29, No. 8. October, 1973. "NEW DIRECTIONS FOR SOLAR ENERGY". (H.S., Ad./d,e)

Uses of solar energy and feasibility components of solar climate control system. Good material for secondary school students, easy reading for teacher.

Publisher: Educational Foundation/Nuclear Science
$8.50/yr. Monthly.

SCIENTIFIC AMERICAN. (Ad./a,b,c,d,e)

Representative of many scientific areas, this periodical will often contain good technical information on energy resources and conversion devices.

Publisher: Scientific American, Inc.
$18.00/yr. Monthly.

SCIENTISTS' INSTITUTE FOR PUBLIC INFORMATION. "ENERGY - CONSUMPTION AND CONSERVATION". (H.S., Ad./b,c,d)

An informative packet of articles from D.I.P.I. titled "Energy Consumption and Conservation," "Energy and Jobs," "The Struggle for Puerto Rico," "Energy and the Worker," "Autos Feed on Oil," "Auto Energy and Pollution" and "The Energy Cost of Pollution Control."

Publisher: Scientists' Institute for Public Information

*SCIENTISTS' INSTITUTE FOR PUBLIC INFORMATION. "ENERGY-FOSSIL FUELS". (H.S., Ad./b,c,d)

A science topic kit on "Energy Fossil Fuels," "What is Pure Coal?" "Destroy to Save," "Wringing Out the West," "The Cost of Coal," "Claims to the Ocean." Useful. Up-to-date.

Publisher: Scientists" Institute for Public Information

*SCIENTISTS' INSTITUTE FOR PUBLIC INFORMATION. Environment. V. 19, No. 5. "SPECIAL REPORT - ENERGY ROUND-UP". Sheldon Novick. (H.S., Ad./b,c,d)

Update of 10/76 article points out that immediate problem is not diminishing reserves but coping with economic and political pressures. The federal administration still has not dealt successfully with the issues. As with the 10/76 article, it delineates complexities and the need for energy policy to deal with the "problem." Also includes articles on more efficient cars and one on nuclear wastes.

Publisher: Scientists' Institute for Public Information

*SCIENTISTS' INSTITUTE FOR PUBLIC INFORMATION. "SYNTHETIC FUELS AND CANCER". (Ad./c)

A series of research papers by the S.I.P.I.

Publisher: Scientists' Institute for Public Information

*SIERRA CLUB BULLETIN. July/August, 1977. "SOLAR ENERGY: DAWN OF AN ERA"
Publisher: Sierra Club
$8.00/yr. 10 issues.

*SIERRA CLUB BULLETIN. V. 58, No. 5. May, 1973. "THE REALITIES AND UNREALITIES OF ENERGY ECONOMICS". Mike Morrison. (H.S./b,c,d,e)
Publisher: Sierra Club

SMITHSONIAN
This publication has frequent articles on natural resources and energy use providing good comment on man's technology in nature's environment.
Publisher: Smithsonian Associates
$12.00/yr. Monthly.

*SMITHSONIAN. V. 4, No. 7. October, 1973. "THERE ARE WAYS TO HELP BUILDINGS CONSERVE ENERGY". (H.S., V.T./b,e)
The author, in a most interesting and non-technical style, cites many ways in which architects, builders, or planners could put their heads together and practice means to halt the escalating power drain. A class research project could be built around the study of architecture in other cultures from the point of view of energy conservation.
Publisher: Smithsonian Association
$10.00/yr. Single copy $1.00.

*SMITHSONIAN. V. 4, No. 8. November, 1973. "INTEREST IN WIND IS PICKING UP AS FUELS DWINDLE". (H.S., V.T., Ad./a,d e)
History and dynamics of windmills. Presents projects and future possibilities. Very interesting reading and readily understandable.
Publisher: Smithsonian Association
$10.00/yr. Single issues $1.00.

*SOLAR AGE. V. 2, No. 9. September, 1977. "TEACHING SOLAR ENERGY". (J.H., H.S., Ad./c,d,e)
Presents a useful curriculum outline based on a year of teaching solar energy to students at the junior high school level. This is the most representative periodical for solar energy information for both commercial and residential applications. Good reporting of government activities, economic factors, educational programs, conference schedules and resource materials and products. It is the official magazine of the American Section of the International Solar Energy Society, Inc.
Publisher: Solar Vision, Inc.
$20.00/yr. Monthly.

TECHNOLOGY REVIEW. (V.T., Ad./a,b,c)
A technical but easily understood coverage of resource, process, and product development with adequate consideration for energy use, conservation methods and environmental impact.
Publisher: Technology Review
$15.00/yr. 8 issues.

*TECHNOLOGY REVIEW. V. 75. July/August, 1973. "WHAT'S NEW IN TRANSIT IN EUROPE". (H.S., V.T., Ad./a,d,e)

Surveys and analyzes innovations in European mass transit and highlights the different attitudes of the European toward his cities. Useful material here for discussion of value systems and technology. Teachers should become familiar with this magazine. The majority of the articles are very readable, not highly technical. See Energy Technology to the Year 2000 cited under Books.

Publisher: Technology Review
$9.00/yr. 9 issues. Single copy $1.25.

WIND POWER DIGEST. (H.S., V.T., Ad./d)

A very complete presentation of numerous wind power designs in use throughout the country.

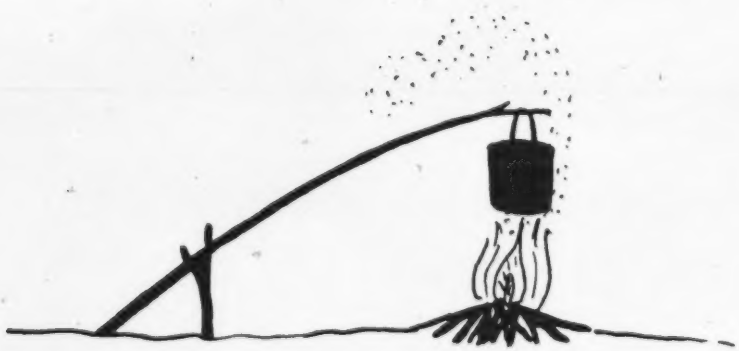
Publisher: Jester Press
$6.00/yr. Quarterly.

*YANKEE. V. 37, No. 12. December, 1973. "AN ETHICAL & MORAL SCIENCE". (H.S., Ad./c,e)

Students investigating alternate life styles will find this article on the New Alchemy Institute most interesting. Dr. John Todd and his associates are using both solar energy and windmills to supply the heat and electricity needed for their self-contained, ecologically-sound community.

Publisher: Yankee
$5.00/yr. Monthly. Single copy 50¢.

*Periodical articles.



IV. AUDIO-VISUAL MATERIALS AND SIMULATIONS

DARKNESS FOR OUR CITIES. Center for Cassette Studies, Inc. Audio-tape. (J.H., H.S./b,c,d,e)

Dr. Robert Rienow makes an impassioned plea for wasteful Americans to change their ways. This is a more dramatic presentation than those on the other tapes cited in this section, useful as an introduction to the topic. Students would find many possibilities for research. There are opportunities for discussion of semantics as well.

DO WE UNDERSTAND ENERGY? West Virginia Department of Education, 1975. Booklet and activities. (J.H., H.S./b,c)

Interesting activities and simulations stressing values.

ECONOMICS OF THE ENERGY PROBLEM (Part II of Energy Topics). Teaching Resource Films, 1976. Color. (J.H., H.S./b,c,d)

This film describes our use of energy, energy shortages, and how they affect the economy. Presents problems of increasing energy needs and maintaining our standard of living without reliance on other nations. Presents role of government in the energy crisis. Good film.

ENERGY APPLIED - Set I (Environment of Man Series). Teaching Resources Films. Filmstrip in color with soundtape. (J.H., H.S./b,c,d,e)

Deals with man's dependence on energy and his search for new sources. Explores the problems of present energy sources and suggests alternatives for the future. Good film. Booklet includes suggestions for discussions and activities.

ENERGY AND THE EARTH. Lyceum Productions, 1973. 2 filmstrips and cassettes or phonodiscs. Color. (J.H., H.S./a,e)

Earth: The Early Years introduces the student to concepts of the formation of the solar system and the geological and biological development of the earth. The era of wind, water, and steam are developed. Part I ends with the beginning of the age of oil, electricity, and the internal combustion engine, circa 1900.

Earth: The Years of Decision opens with the technical explosion of the 20th century. The extravagant use of non-renewable resources is reviewed and the generation of electrical energy is explored from hydropower and fossil fuel stations to magnetohydrodymanics and fusion.

The teacher's guide lists key topics for discussion prior to viewing, and follow-up activities.

THE ENERGY CRISIS. Churchill Films. 4 16mm color films. 20 min. $940 each. (J.H., H.S., V.T., Ad./a,b,d,e)

Energy: The Dilemma. Energy growth patterns, past, future, and present. Explores problems of supply and demand, depletion of fossil fuels, our dependence and environmental and social concerns.

Energy: The Nuclear Alternative. Explains fission, how it works, and controversies over safety and radioactive wastes.

Energy: New Sources. The potentials and limits of new technologies including solar, fusion and geothermal. An argument for developing a variety of options.

Energy: Less is More. An investigation of the need for slowing the growth of energy consumption and ways to accomplish this.

THE ENERGY CRISIS. The School Times Teacher's Guide - Teaching Resources Films. 2 filmstrips and cassettes. Color. (H.S./b,c,d,e)

An Historical Review. A history of energy sources throughout time from Egyptians until present times. Booklet with discussion questions enclosed.

Report from Planet 32. A dramatic view of the planet Earth if man continues to abuse it. Instructions for teachers in instructing classes concerning credibility of film, i.e., could this really happen to Earth? Very effective film. Booklet with discussion questions enclosed.

ENERGY CRISIS: WHAT CAN WE DO? Part 1 and 2. The Alliance for Environmental Education. 2 filmstrips with cassettes. Color. (J.H., H.S./b,c,d)

This filmstrip reviews the energy crisis in the U.S. today, focusing on probelms in obtaining oil and natural gas, suggesting various means of conserving energy, presenting government approaches to solving energy problems and the importance of relationships with foreign oil producers. Discussion is encouraged at end of film.

ENERGY: A DIALOGUE. American Association for the Advancement of Science, 1973. Audiotapes. (H.S., Ad./b,c,d,e)

A collection of twelve tapes which present an overview of our energy problems with emphasis on the views of knowledgeable people from different sectors of our society. Non-technical, good listening. Series titles:

1. The Energy Crisis: Myths and Realities
2. What Lights the Lights?
3. Temporary Energy: Oil and Gas
4. New Face for an Old Fuel: The Outlook for Coal
5. The Promise of Nuclear Power
6. Energy Alternatives: Solar and Geothermal
7. The Future for Fusion
8. Take the Bus: Energy Conservation
9. The Economics of Energy
10. Energy and Environment
11. Choices for the Future: Energy Management
12. Reprise

THE ENERGY-ENVIRONMENT GAME. Edison Electric Institute, 1973. Free. (J.H., H.S./b,c,d,e)

This is an educational simulation that deals with society's demand for increasing amounts of electrical energy and the complex problems which result from this demand. It is designed to provide junior and senior high school students with problem-solving experiences which lead to decision making. It is important to realize that this uses stereotypes to guide the outcome of the game. Game materials consist of a filmstrip, record, teacher's guide, players' guide, 32 role profiles, site selection materials, and background information.

ENERGY HISTORY OF THE UNITED STATES 1776-1976. ERDA, 1976. Free. (J.H., H.S., V.T., Ad./b,d,e)

A 3x4 foot color chart packed with dates and events - technical, economic, political, social - which figure in our energy history. Useful with students when guidance is provided by instructional units. A user's manual is included.

FUSION ENERGY: POWER OF THE FUTURE. Cassette #572. Center for the Study of Democratic Institutions. Audiotape. (H.S., Ad./b,c,d,e)

In a non-technical talk, Mr. Richard F. Post of the Lawrence Radiation Laboratory, one of the foremost authorities on fusion energy, describes the substantial progress that has already been made in harnessing fusion power. He maintains that the timetable for fusion power production is "...now up to you, collectively." The transition time of scientific proof to commercial production is a matter of will just as the matter of getting to the moon was a matter of will. Fusion power could be available within a decade. Ample opportunity for values level discussion.

Many excellent tapes are produced by this Center. Write for catalog.

THE GREAT SEARCH. Walt Disney Education Materials Co. 16mm color. 13 min. $170.00/Rental $12.00. Teacher's guide. (J.H., H.S./b,c,d,e)

This brief film combines excellent animation and clear, concise narration to provide the viewer with a brief overview of how different forms of energy have been utilized throughout history to do man's work. The focal point of the film is that the search for new and more powerful forms of energy will continue because man has the ability to use his head to get ahead in an ever-changing environment.

THE HOUSEHOLD ENERGY GAME. Marine Studies Center, 1974. Game with booklet. (J.H., H.S./a,b,c,e)

This energy game shows you how you can put together your energy budget - uses of energy over which you have control. The game also shows how to modify this energy budget to conserve energy.

THE HYDROCARBON CIVILIZATION ENERGY TRIAL MATERIALS. Minnesota Environmental Sciences Foundation Inc. Simulation. $5.50. (H.S./c,d,e)

Activities and simulations to help the learner identify their interests in energy, become aware of energy options, look to the future and learn how they and others think about energy. They make use of and teach skills in sciences, social studies, language arts and mathematics. Interesting packet.

INTERCHANGE V. 2, No. 2. Population Reference Bureau. (J.H., H.S./b,d,e)

The activity sketch: Transportation Policy: Riding with Reason details a simulation which includes discussion of the energy requirements of several modes of transportation, certainly an area of great interest to many students.

Interchange is a newsletter for teachers on population education. See citation POPULATION BULLETIN.

LIFE SCIENCE INVESTIGATIONS: MAN AND THE ENVIRONMENT. Houghton-Mifflin, 1971. (J.H., H.S./b,c,d,e)

Investigation 21 "What is the Price of Progress" in this junior high school text contains two role-playing games designed to help students understand the origin of thermal pollution of our water resources. The first game simulates the history of a city. In the second the students play the roles of contemporary groups involved in a hearing on the proposed construction of an atomic power plant. This investigation could be carried well beyond the scientific aspects to become an interdisciplinary project involving social implications, semantics, history,

values discussions, local community surveys, etc. (See also the citation for Power Plants in Toledo.)

MAN, ALASKA AND ENERGY. Alyeska Pipeline Service Co., 1972. 5 color filmstrips with phonodiscs. (J.H., H.S., V.T./c,d,e)

This series explores the aspects of man's relationship to the Alaskan environment as a whole, and specifically spots the trans-Alaska pipeline. Here is an opportunity to bring in the question of semantics in relation to the discussion of environmental problems - could these same filmstrips be used to present an opposing viewpoint? See COPING WITH THE MASS MEDIA cited under curriculum guides. The teacher's guide suggests other likely topics for discussion.

MAN BUILDS-MAN DESTROYS. Great Plains National Television Library. Color videotape and video cassettes. (J.H., H.S./b,c,d,e)

"Power to the People," one of the thirteen programs in an outstanding series, reviews various energy sources and the human demand and insatiable appetite that have developed for such energy. These programs were produced by the New York State Education Department and United Nations Television. The international emphasis is an important aspect of this program and one that should lead to many possibilities for class research.

OIL: GLOBAL WEAPON. The New York Times Filmstrips, 1974. One filmstrip with cassette. Color. (H.S./b,c,d)

Oil is presented as a necessity and a powerful weapon. Arab nations are criticized and some information concerning them is outdated. However, good information is presented on oil production, and the economics and politics of the oil situation. Discussion guide included for teachers.

OUR DIMINISHING NATURAL RESOURCES. The School Times - Teaching Resources Films. Filmstrip with cassette. Color. (J.H., H.S./b,c,d,e)

Review of energy crisis, some of the causes of the crisis and measures being taken to halt the consumption of our natural resources. Contains activity chart, suggestions for assignments, discussions, projects related to film content. Interesting and provocative.

SCIENCE ACTIVITIES IN ENERGY: 1) SOLAR ENERGY, 2) CONSERVATION, 3) CHEMICAL ENERGY, 4) ELECTRICAL ENERGY. The American Museum of Atomic Energy. Experiments and folders. Free. (E./b,d,e)

An excellent series of simple, concrete, revealing experiments designed to develop exploration skills and self-discovery. Many of the activities involve art, economics, math, and reading in addition to science. The individual activity cards are attractive and easy to follow.

SOLAR ENERGY AND ITS USES. Institute of Environmental Sciences, 1976. Wall chart. $4.50. (H.S., Ad./a,b,d,e)

Several applications for solar energy are pictured in this chart. Projections for future use as an alternative to oil and gas are given. Together, they provide a visual concept of the increasing importance of direct energy conversion from the sun.

THE STORY OF ELECTRICITY. Culver Publications, Inc., 1975. Comic book. (E./a)

A story of electric power generation: inventions, conversion methods, distribution systems, energy research and consumer response.

TEACHING ABOUT SPACESHIP EARTH. Intercom #71. Center for War/Peace Studies, 1972. $1.50. (E., J.H./b,c,d,e)

This is a well-thought out, stimulating and imaginative role-playing experience for the middle grades. It was developed in conjunction with UNICEF with a consequent emphasis on the need for children to learn about the larger world from a global vantage. The teacher's guide contains detailed instructions for science activities to lay the groundwork for a few key scientific concepts. These activities do not call for complex or expensive materials, nor does the teacher need special training.

TILLY'S CATCH-A-SUNBEAM COLORING BOOK. Solar Service Corp., 1975. Coloring booklet. $1.50. (E./d,e)

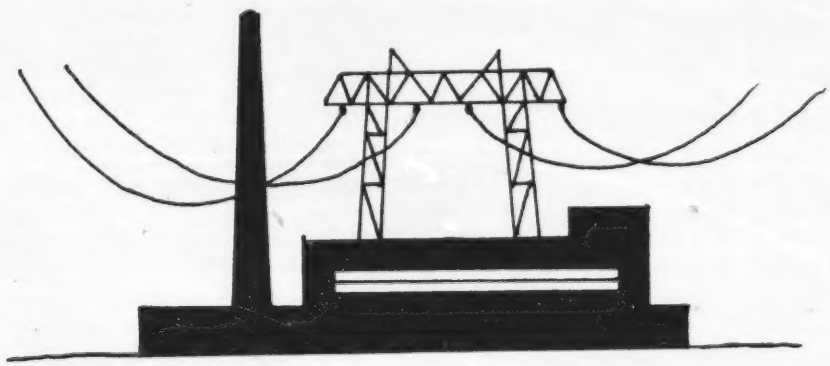
A coloring book illustrated for the purpose of introducing solar energy concepts to early elementary students.

WHY THE ENERGY CRISIS? (Part 1 of Fundamental Issues of our Time). Teaching Resources Films, 1974. Filmstrip with cassette. Color. (J.H., H.S./b,c,d)

Discusses the importance of oil as a major source of power in the world - as an energy source and source of fertilizer. Because the supply of oil is limited, oil rich Middle East nations are emerging with new wealth and power. Good film - outdated in a few areas.

THE WIDE WORLD OF ENERGY. Walt Disney Educational Media Co., 1976. Multimedia kit. $109.00. (E., J.H./b,c,d,e)

This package consists of 30 comic books, 10 energy activity cards, the energy game, 18 energy study prints and a filmstrip and cassette, along with a teacher's guide to help adapt the material to the two different age levels. Although initially expensive, the material has high interest value and good information and simple activities, and is well enough constructed to stand up for several years and classes.



V. TEACHING GUIDES AND RESEARCH

A COMMUNITY ENVIRONMENTAL PROGRAM - ENVIRONMENT - ENERGY - EDUCATION. Beaverton School System, Oregon. (E., J.H./e)

A rich resource guide for environmental education grades 1 to 6. However, only a very few energy activities are included despite the subtitling.

COPING WITH THE MASS MEDIA. McDougall, Littell and Co., 1971. (H.S./e)

This is one section of the Language of Man, an outstanding language arts series. Teachers will find many ideas here and in another section, How Words Change Our Lives, that will enliven their approach to the energy crisis. See also the article entitled "Language of Deceit" in Media & Methods, May 1973.

DISTRICT LEVEL PLAN FOR CONSERVATION. Calvin E. Anderson. Colorado Dept. of Education. (H.S., V.T., Ad./b,d,e)

A step-by-step plan to organize an effective energy conservation team within a school system.

THE DOLLARS AND CENTS OF RESIDENTIAL ENERGY UTILIZATION: A DEVELOPMENTAL GUIDE. Cooperative Science Education Center, 1972. (H.S., V.T., Ad./b,e)

This material places special emphasis on the effective utilization of energy for space heating. As the standard of living increases, so does the demand for heated space. "The questions and problems in this booklet were designed to guide the user in developing a basic concept of energy, e.g. the relationship between various forms of energy, conversion units, the growth of energy use, and the value of thermal insulation in saving both energy and money." An opportunity for the high school math classes to explore the energy shortage.

ELEMENTARY TEACHING UNITS - STAPLES ENERGY CONSERVATION PROGRAM. Gene Johnson, Ray Gildow, Co-Directors. Indiana School District 793. (E./b,c,d,e)

Packets of activities for each grade level. Includes extensive bibliographies, periodical list, and source of materials. Valuable source. Some of the K-6 activities are questionable for that stage of learning development.

ENCORE. Department of Industrial Education. (E., J.H./c,e)

Thirteen chapters of energy related material and activities. Each contains suggestions for the teacher, bibliography, vocabulary and tests.

ENERGY ACTIVITIES FOR JUNIOR HIGH SCIENCE. Minnesota Energy Agency, 1977. (J.H./c,e)

Six short activities for the classroom. Each has some background, instructions and evaluation questions which emphasize sharing and clarification of values.

THE ENERGY CHALLENGE. Federal Energy Administration. Free. (E., J.H./e)

Six energy units with 24 activities. Objectives, background and implementation suggestions are provided for each activity. Provided in the form of duplication masters for use with grades 5 through 8.

ENERGY CONSERVATION: GUIDELINES FOR ACTION. Michigan Association of School Administrators, 1974. $0.75. (E., J.H., H.S./b,e)

A good teacher resource providing guidelines for study of energy conservation through various types of student activities at both the elementary and high school level. Many suggested resources are listed.

ENERGY CONSERVATION IN THE HOME. University of Tennessee Environmental Center and College of Home Economics. E.R.D.A. Free. (Ad./b,c,e)

A very complete curriculum guide for the home economics teacher. It could be used in units or as a whole. Parts of it can be used in social studies, science or related courses. It includes illustrated activities and a good bibliography. Teachers may obtain single copies by writing on school letterhead.

ENERGY CONSERVATION - UNDERSTANDING AND ACTIVITIES FOR YOUNG PEOPLE. Federal Energy Administration. $0.85. (J.H., V.T./b,c,e)

An attractive, very general booklet on energy. Includes activities, short bibliography, short glossary and references.

ENERGY CONSERVATION - UNDERSTANDING AND ACTIVITIES FOR YOUNG PEOPLE (TEACHER SUPPLEMENT TO). New Mexico State Dept. of Education. (J.H., H.S., V.T./a,b,c,d,e)

Teacher supplement to preceding booklet. Large, well written to give the teacher and student an understanding of what energy is, what is conservation, and how energy is used. It contains activities and suggestions for all disciplines.

ENERGY CRISIS TEACHING RESOURCES. Wendell Curry et al., 1974. reprint. $2.00. (E., H.S., V.T./b,c,d,e)

Contains sections on energy crisis information for teachers, classroom ideas, all-school activities for energy conservation and a home survey handbook as well as a reference list. Helpful to planning student involvement in energy conservation. Contains reading list and glossary of terms.

ENERGY AND THE ENVIRONMENT. VOL. II. State of Florida, 1977. (E., J.H., H.S./b,c,d,e)

A lesson plan format with many student activities based on numerous energy-environment concepts.

ENERGY-ENVIRONMENT MINI-UNIT GUIDE. Stephen M. Smith et al. N.S.T.A., 1975. $3.00. (E., J.H., H.S./a,c,d,e)

Unit activity and information sections for various grades. Provides time allocating teaching strategies and preparation ideas for units on energy users, home heating and cooling, natural energy sources and transportation. Very sufficient for teacher planning.

ENERGY IN HUMAN LIFE, MODULE A, NINTH LEVEL. Energy Management Center, Pasco Public Schools, Florida, 1976. (H.S., V.T., Ad./a,e)

An effectively written guide toward learning about the nature of energy. Diagrams which help demonstrate concepts and learning activities are oriented to the following objectives: understanding the concepts of energy, work, potential and kinetic energy, mechanical energy, heat energy, light energy, chemical energy, electrical energy, nuclear energy, energy transfers.

ENERGY MANUAL FOR PARKS: A HANDBOOK FOR INTERPRETERS AND NATURALISTS. Lee Stephenson. National Park and Recreation Association, April, 1976. $3.00. (H.S., Ad./b,c,e)

Excellent guide for teachers in any curriculum area. Provides up-to-date information on natural and human systems, energy demand and alternatives and conservation. Extensive appendices on energy measurements and conversions and details on alternative energy forms. Includes an excellent bibliography of references, organizations, films, and teaching aids.

ENERGY AND ORDER. Mark Terry and Paul Witt. Friends of the Earth, 1976. $3.00. (H.S., V.T./b,c,e)

Interesting activities help the student understand his personal energy use. Deals with values and decision-making. Includes good, short bibliography.

ENERGY AND SOCIETY: INVESTIGATIONS IN DECISION MAKING. Hubbard, 1977. (H.S., Ad./c,d,e)

Energy course for High School (Biological Sciences Curriculum Study). Student manual and instructor manual. Excellent guide to energy decision making. A very informative student resource book combines the scientific and social responsibilities which we need to assume to solve our energy problems. The instructor's manual provides curriculum organization, instructional strategies, and investigative procedures.

ENERGY: A TEACHER'S INTRODUCTION TO ENERGY AND ENERGY CONSERVATION-(ELEMENTARY). Ohio Dept. of Education, 1975. E./b,c,e)

An excellent guide for teachers wishing to provide energy information and activities for primary and upper elementary students. Excellent bibliography. Spells out concepts, objectives and activities for each lesson.

ENERGY: A TEACHER'S INTRODUCTION TO ENERGY AND ENERGY CONSERVATION-(SECONDARY). Ohio Dept. of Education, 1975. (H.S./b,c,d,e)

A well written guide to energy information and conservation teaching resource units for the junior and senior high level. Objectives, discussion points, and learning activities are given for each unit. Includes concepts, objectives, and activities. Excellent bibliography.

ENERGY WORKBOOK FOR PARKS. Lee Stephenson and Nancy Strader. National Park and Recreation Association. Free. (E., J.H., H.S., Ad./b,e)

A store-house of information and activities for energy interpretation. Designed especially for use in park programs, this excellent reference will also be helpful to anyone wishing to experience energy flow in our natural system.

ENVIRONMENTAL DESIGN SCIENCE PRIMER. Earth Metabolic Design. (H.S., V.T./a,e)

In three parts, this book interprets Buckminster Fuller's work, exploring the potential of the individual in helping to solve humanity's problems. A step-by-step guide to the planning process and a reference section of useful information for self study and research. A different approach to learning.

ENVIRONMENTAL EDUCATION, ENERGY - SOCIETY, GRADES 4 - 12. E.R.I.C. $3.50 plus postage. (E., J.H., H.S./b,c,d,e)

This is one of a series of three energy-related units. Contains numerous student learning activities for various grade levels based on behavioral objectives. Each provides the purpose, suitable level, related subjects and methods. Includes resource list.

ENVIRONMENTAL EDUCATION ENERGY - TECHNOLOGY: GRADES 7 - 12. The New Jersey State Council for Environmental Education. (J.H.,H.S., V.T., Ad./a,d,e)

Many activities providing energy and technology information and problems for teachers and secondary students to present and research. The activities often combine subject areas such as math, science, industrial arts, English, art and social studies.

ENVIRONMENTAL EDUCATION - ENERGY - TRANSPORTATION: GRADES K-8. The New Jersey State Council for Environmental Education. (E./a,e)

Many suggested activities for students combining social studies, math, science, English and language arts concepts in the study of energy as applied to our transportation systems and related problems.

FINDING SOLUTIONS TO ENVIRONMENTAL PROBLEMS: A PROCESS GUIDE. Jonathan M. Wert, PhD., and Michael A. Magnoli, PhD. Mobile County Public Schools. (V.T., H.S., Ad./e)

This guide provides a workable methodology for helping students and citizen groups to identify the most pressing environmental problems in their communities and to find solutions for them. It is useful for High School students who are interested in independent or team studies.

FLORIDA MASTER PLAN AND ACTION GUIDE FOR ENERGY EDUCATION. Florida State Energy Office. (E., J.H., H.S./e)

Description of energy education in Florida's public school system. Helpful to those establishing energy policy and planning curriculum.

THE FLOW OF ENERGY IN THE ENVIRONMENT, MODULE B, 9TH LEVEL. Energy Management Center, Pasco County Public Schools, Florida. (H.S., V.T./ a,b,c,e)

A good understanding of the numbers of skilled men and women necessary to find, extract, refine and transport fossil fuels and of the jobs and careers associated with this energy and its use. The problems caused by our use of these fuels is discussed. A strong careers unit.

HIGH SCHOOL TEACHING UNITS - STAPLES ENERGY CONSERVATION PROGRAM FOR SOCIAL STUDIES, MATH, SCIENCE, HOME ECONOMICS, SPEECH. Gene Johnson, Ray Gildow (Co-Directors). Indiana School District. (H.S., V.T./b,c,d,e)

Five packets of materials for energy education in different disciplines. Contains excellent collection of activities, references, bibliographies and good background information. Very adaptable units and an excellent resource.

IDEAS AND ACTIVITIES FOR TEACHING ENERGY CONSERVATION: GRADES 7 - 12. The University of Tennessee, 1977. (J.H., H.S./b,c,d,e)

Has an excellent format of information and student activities for study of energy conservation. Objectives and procedures are very appropriate. Very useful appendices with reference tables and resource material list.

INTERDISCIPLINARY STUDENT/TEACHER MATERIALS ON ENERGY, THE ENVIRONMENT, AND THE ECONOMY - 6 UNITS. National Science Teachers Association, 1976. Free. Order from E.R.D.A. (E., J.H., H.S., V.T./a,b,c,d,e)

Grade 1: The Energy We Use
2: Community Workers and the Energy They Use
8,9: Transportation and the City
8,9: Energy, Engines, and the Industrial Revolution
9,11,12: How a Bill Becomes a Law to Conserve Energy
10,11,12: Agriculture, Energy, and Society

A series of teacher designed lessons for the presentation of energy concepts. Teacher lesson plans with student activities cover energy sources, conversion devices, careers, industry, transportation, agriculture, environmental conservation and laws. Very good content and motivating activities.

IT'S YOUR ENVIRONMENT. Sherry Koehler, Ed. Charles Scribner & Son, 1976. $8.95 hard cover/$0.95 paper. (E., J.H., H.S./b,c,e)

Good elementary information and activities on the effect of energy on life and our use of it, and other related subjects; good references cited with each activity. Text, illustrations and suggested projects explore environmental concerns of urban areas.

LEARNING Vol. 2 No. 4 Dec. 1973. (E., J.H./b,c,e)

"Starting Points - Energy: Plugging Into the Fuel Crisis"

Although these "Starting Points" are aimed at teachers of K-8, the opening paragraphs of this one point the way for teachers at any grade level to approach the energy crisis. The depth of study and degree of difficulty will of course vary but the fundamental objectives will remain the same. The article contains a series of activities to help students understand what energy is, not in abstract terms but rather as it flows through the everyday world. The two pull-out "Learning Scenes" are designed to help children understand how this energy is controlled, how it is used, and what negative as well as positive consequences may result.

LET'S LEARN ABOUT ENERGY, MODULE A, 4th GRADE. Energy Management Center, District School Board of Pasco County, Dade City, Florida. (E./c,e)

What forms energy takes, how man has learned to use different kinds of energy, why man needs energy. Demonstrates simple machines utilizing wind, water, and solar power. Discusses and evaluates whether man, as a result of industrialization, used too much energy, or used it inefficiently.

LIVING WITHIN OUR MEANS: ENERGY AND SCARCITY - ENVIRONMENTAL EDUCATION INSTRUCTIONAL ACTIVITIES - K-6 AND 7-12. The University of the State of New York. (E., J.H., H.S./b,c,e)

K-6. Activities illustrate the manner in which environmental energy concerns may be integrated into classroom instruction in a variety of disciplines. Includes bibliographies.

7-12. A multidiscipline approach to integrating environmental/energy concerns into classroom instruction. Though some activities are grouped 7-9 and 10-12 levels, they may be adapted for use at other levels. Contains good bibliography.

MAN AND ENERGY, MODULE C, 4th GRADE. Energy Management Center, District School Board of Pasco County, Dade City, Florida. (E./a,b,d,e)

Introduction to electricity and how it is produced; its dependency on fossil fuels and the problems that poses.

MAN AND ENVIRONMENT TEACHING ALTERNATIVES. The Information Reference Center for Science, Mathematics, and Environmental Education, 1977. (Ad./a,e)

A great number of ideas about what is important in the Man and Environment curriculum are presented in a concise format of concept, student learning objectives and teaching learning strategies. Each of the major topics such as value systems, concepts of change, earth as an energy system, are presented with as many as five alternative structures. This is a good reference for teacher planning.

NATURE'S ENERGY - MODULE B - 4th GRADE. Energy Management Center, District School Board of Pasco County, Dade City, Florida. (E./a,d,e)

A good introduction to solar energy and the dependence on it of all living things. It introduces the many jobs and careers associated with energy and its use.

POWER PLANTS IN TOLEDO. Toledo Public Schools (E., J.H., H.S., Ad./c,d,e)

This section of the Toledo Environmental Education Program, containing two environmental encounters, one for secondary level and one for elementary, provides teachers with an excellent format on which to build encounters geared to their own communities.

Guidelines for the Teacher, another section of the Toledo EE program, includes sections on handling value questions, handling controversial issues, and effecting social change. All of these can help a teacher to make the study of the energy crisis a worthwhile project.

THE PRODUCTION OF POWER, MODULE C, NINTH LEVEL. Energy Management Center, Pasco County Public Schools, Florida. (H.S., V.T./d,e)

Organized series of lessons, illustrations, demonstrations and learning activities. Discusses the physical principles that govern the creation of an electrical field flow. Role playing situations are presented related to the choices of how and where people will obtain power in the future.

SOLAR ENERGY EXPERIMENTS. Thomas W. Norton. Rodale Press, 1977. (H.S., V.T., Ad./d,e)

Presents eighteen self-explanatory solar energy experiments and classroom activities suitable for individual student analysis. Includes a glossary, bibliography, and appendices of charts and tables.

A TEACHER'S HANDBOOK ON ENERGY. Colorado Dept. of Education, 1974. (E., J.H., H.S./b,d,e)

Covers a series of awareness activities and checklists, national and local energy use information, and resource lists. The teacher may select those experiences which will motivate energy consciousness and action to the student. Quite usable material. Good bibliography.

TEACHING ENVIRONMENTAL EDUCATION. Harold R. Hungerford and R. Ben Peyton. J. Weston Walch, 1976. $8.95. (E., J.H., H.S./b,c,d,e)

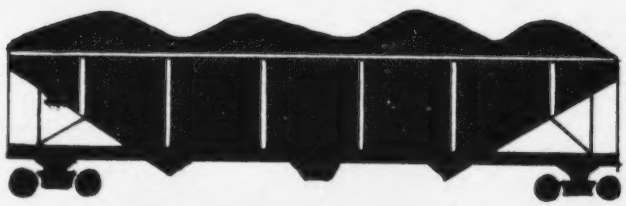
An especially good source of information for teachers involved in curriculum development and/or instruction. Appendices include cognitive knowledge concepts for environmental education, national and regional offices of E.P.A., national organizations, annotated list of instructional materials, a list of journals and periodicals, a bibliography and a list of references.

TOTAL ENVIRONMENT EDUCATION. Indiana Environmental Advisory Committee, 1975. Department of Public Instruction, State of Indiana. (E., J.H., H.S./e)

Provides useful guide to developing an environmental education program for community, school, classroom. Content outlines, suggested activities and resource lists are given. Instructional objectives and student outcomes are extensive and purposeful. Includes listing of curriculum resources.

THE WORLD ENVIRONMENT FORECASTING MODULE. Project CLEAN 1973. (J.H., H.S./c,d,e)

Concerns for today's environmental needs and decisions will be inadequate unless we can visualize the future and project our plans to the situation as it may exist in the coming decades. Students can be helped to develop this skill through activities such as are described in this detailed unit.



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Approximately 80 references, which were selected as background documents for the preparation of National Science Teaching Association fact sheets. Reading level ranges from popular to detailed explanations of particular technologies. Categories for listing include: general energy, solar, wind, geothermal, energy conservation, nuclear, coal gasification, energy storage technology.

A BIBLIOGRAPHY OF ENERGY EDUCATION MATERIALS. People and Energy Project C.S.P.I.

An annotated listing of energy education materials available. Ask for publications list - good materials.

A COMPOSITE OF ENERGY CURRICULUM GUIDES AND ENRICHMENT MATERIALS. Prepared by Michael A. Magnoli and Jonathan M. Wert, Mobile County Public Schools. Free.

A brief annotated listing of 70 reference materials and curriculum guides related to energy which have been developed by federal and state departments of education, utilities, and private companies. A tool for locating specific classroom materials.

EARS (Environmental Action Reprint Service).

Good up-to-date listings - get on mailing list.

EARTH SAVING TOOLS. The Environmental Action Foundation. Free.

A publishers list of resources written on environmental concerns such as solid waste, nuclear energy, electric utilities, and transportation planning.

E.C.P. STATE BIBLIOGRAPHY: NEWSLETTER #8. Barbara L. Shaw, Energy Conservation Project.

A supplement to the "E.C.P. State Bibliography," a collection of state by state energy legislation.

ENERGY: THE NTIS ENERGY CATALOG. U.S. Dept. of Commerce. Free.

Guide to current information on energy research production, consumption and projections available from the National Technological Information Service.

ENERGY CATALOGUE NO. 8. Environmental Action Reprint Service. Free.

A catalogue listing energy materials available for purchase from the Center. Included are books, articles, reprints, and films. Energy category headings include: alternative energy sources, energy conservation, solar architecture, collectors, cells, dryers, greenhouses, wind power, wood energy, technology, nuclear power, safety, economics, utilities.

ENERGY EDUCATION MATERIALS INVENTORY. N.T.I.S. 1976.

Five material inventories, print materials, non-print, 16mm films, Part IV: kits, games, and miscellaneous curricula. Part V: reference sources include grade levels.

THE ENERGY EDUCATION BIBLIOGRAPHY. Jonathan Wert and others. Energy and Man's Environment. First copy free - additional copies 10¢.

Contains materials which relate to energy/conservation education such as curriculum guides and enrichment materials.

THE ENERGY AND ENVIRONMENT BIBLIOGRAPHY. Prepared by Betty Warren. Friends of the Earth, 1977.

A good bibliography covering all aspects of energy including an overview of alternate energy sources and conservation.

ENERGY/ENVIRONMENT/ECONOMY. Enviro/Info Center Inc. April, 1973.

An annotated bibliography of selected U.S. government publications concerning energy policies.

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Updates and augments the April issue. These two sources offer teacher or student the opportunity to build case studies on growth and change in governmental policy. Should include newest list.

ENERGY-ENVIRONMENT MATERIALS GUIDE. Kathryn E. Mervine and Rebecca Cawley. National Science Teachers Association, 1975. $2.00.

An excellent guide to energy related resources. It separates readings for teachers, readings for students grades 8-12 and grades 5-9. It has very complete appendices for audio-visual materials, curriculum guides, low cost materials, and government documents.

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A most extensive annotated bibliography on windpower.

ENERGY - WHO'S DOING WHAT? Anne Townsend and others. National Recreation and Park Association.

An annotated listing, by state, of groups concerned about energy.

THE HUMAN ENVIRONMENT VOLUME I. Environment Series #201. Woodrow Wilson International Center for Scholars, 1972.

A selective annotated bibliography of reports and documents on international environmental problems. Useful for in-depth research projects on the international aspects of the energy crisis.

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This volume contains interesting and informative articles about a number of aspects of solar energy along with its listing of a wide variety of existing parts needed to assemble or install a variety of solar devices. Contains also a state-by-state listing of organizations that can provide guidance on solar efforts and listings of sources for solar devices.

SOLAR ENERGY HANDBOOK. Paul A. Fleck, Ed. William F. Fleck, Time-Wise Publications, 1975. $3.95.

Small book of facts about the sun and its contribution to the earth, scientific and engineering definitions and units, cost equivalents and who is involved. This book provides information in understandable form and provides contacts to organizations in solar energy.

SOLAR HEATED BUILDINGS, A BRIEF SURVEY. W. A. Shurcliff. $2.00.

An encyclopedia of houses, schools and commercial buildings that are partially or fully solar heated in the United States. A total of 319 sites are examined in detail. Sites are classified according to states. Floorplans and structures are described and illustrated. Collectors and storage systems are also described.

SPECTRUM: AN ALTERNATE TECHNOLOGY EQUIPMENT DIRECTORY. Eugene Eccli, Ed. Alternate Sources of Energy, March, 1977. $2.00.

A very complete listing and review of 436 manufactured products related to energy use.

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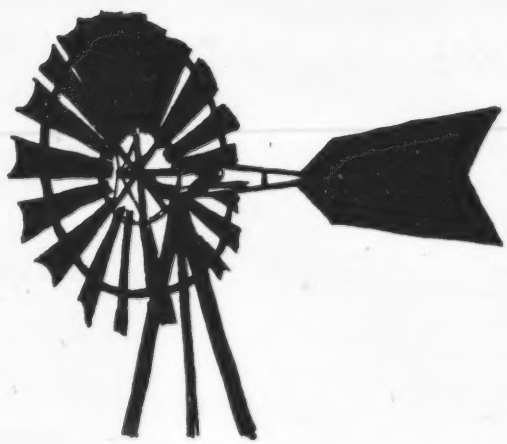

VII. ADDRESSES

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150 Edscorp Building
Barrington, NJ 08007

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Washington, DC 20009

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Portland, OR 97201

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Pasco County, FL

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Washington, DC 20545

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